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TECHNICAL NOTE

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DIRECT-READING DESIGN CHARTS FOR 75S-T ALUMINUM-ALLOY
FLAT COMPRESSION PANELS HAVING LONGITUDINAL
STRAIGHT-WEB Y-SECTION STIFFENERS

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Washington
August 1948



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SUMMARY

Direct-reading design charts are presented for 75S-T aluminum-alloy flat compression panels having longitudinal straight-web Y-section stiffeners. These charts make possible the direct determination of the stress and all the panel proportions required to carry a given intensity of loading with a given skin thickness and effective length of panel.

INTRODUCTION

Design charts for wing compression panels have been going through a process of development since the introduction of the parameter intensity-of-loading divided by effective-length-of-panel (references 1 and 2). This parameter was originally conceived for use in measuring the relative structural efficiency of different types of construction, and it has been so used by a number of investigators. (See, for example, reference 3.) It was also found to have particular value for use in design charts for longitudinally stiffened compression panels (references 4 and 5). Design charts of the type presented in references 4 and 5 fell short of maximum utility, however, because they did not permit the direct selection of panel proportions to meet the principal design conditions - intensity of loading, skin thickness, and effective length of panel. In order to increase the usefulness of such charts, a summary type of plot was proposed in reference 6 for use with them. This plot made possible the direct determination of the stress that could be carried by minimum-weight panels and one of the panel proportions required to achieve minimum weight, namely, the ratio of stiffener thickness to skin thickness. The other panel proportions, however, could not be found directly.

In the present paper, design charts are presented which permit the direct determination of all the panel proportions required to achieve minimum weight, as well as all the proportions other than those for minimum weight which will also meet the given design conditions. These charts are therefore useful not only for finding minimum-weight

proportions but also for studying the effect of changing the design conditions, or for selecting proportions, other than those for minimum weight, which may be more suitable for a particular application.

SYMBOLS

The symbols used for the panel dimensions are given in figure 1. In addition, the following symbols are used:

| | |
|------------------|---|
| c | coefficient of end fixity as used in Euler column formula |
| d | rivet diameter, inches |
| L | length of panel, inches |
| p | rivet pitch, inches |
| P_1 | compressive load per inch of panel width, kips per inch |
| r | all fillet radii, inches |
| \bar{t} | cross-sectional area per inch of panel width, expressed as an equivalent or average thickness, inches |
| ρ | radius of gyration, inches |
| $\bar{\sigma}_F$ | average stress at failing load, ksi |
| σ_{cr} | stress for local buckling of sheet, ksi |
| σ_{cy} | compressive yield stress, ksi |

DIRECT-READING DESIGN CHARTS

Direct-reading design charts for 75S-T aluminum-alloy flat compression panels with longitudinal straight-web Y-section stiffeners having the properties and proportions given in tables 1 to 6 are presented in two forms in figures 2 to 11. In the first form (figs. 2 to 6), the design conditions of intensity of loading, effective length of panel, and skin thickness are incorporated in the ordinate P_1/t_s and the abscissa $\frac{P_1}{L/\sqrt{c}}$. This form, having the design conditions incorporated in the ordinate and abscissa, is the more useful for most design purposes because the curves are more widely spaced and interpolation is more straightforward. In the second (alternate) form (figs. 7 to 11), the average stress at failure $\bar{\sigma}_F$ is plotted against P_1/t_s as was done

in the summary plots of reference 6. This alternate form, having the stress - an inverse measure of weight for a given load - as ordinate, is the more useful for making generalizations and comparisons of structural efficiency because it shows how nearly the stress actually carried approaches the upper limit corresponding to the stress that would be achieved by a pure shell construction if a pure shell could carry the load without failure. This upper limit of stress is represented by the lines for $\bar{\sigma}_f = \frac{P_1}{t_S}$ (infinite stiffener spacing) in figures 7 to 11.

Values of the ratios of stiffener thickness to skin thickness t_W/t_S , average spacing of rivet lines to skin thickness S/t_S (because there are two rivet lines associated with each Y-section, the stiffener spacing equals $2S$), and height of stiffener to stiffener thickness H/t_W , which will satisfy the design conditions, may be found directly from these charts, and the corresponding section properties \bar{t}/t_S , \bar{h}/t_S , and ρ/t_S may be found from tables 2 to 6. In the first form of design chart (figs. 2 to 6) dashed lines are used to indicate values of average stress at failure $\bar{\sigma}_f$; whereas, on the alternate form of design chart (figs. 7 to 11) dashed lines are used to indicate values of $\frac{P_1}{L/\sqrt{c}}$. In both forms the value of $\bar{\sigma}_f$ corresponding to the point at which each curve is cut by a short heavy line is used to represent the value of the stress for local buckling σ_{cr} for the proportions represented by that curve. For example, the value of σ_{cr} for $\frac{H}{t_W} = 33.8$ and $\frac{S}{t_S} = 16.2$ in figure 2 is approximately 56 ksi. (Only a very short panel of these proportions would buckle before failure - one having a value of $\frac{P_1}{L/\sqrt{c}} > 0.52$.) If the value of σ_{cr} is so low that the short heavy line would fall outside the boundaries of the chart, a numerical value of σ_{cr} is given and is associated with the proper proportions by a leader to the curve. The panel proportions which have minimum weight are indicated on both forms of these charts by the use of colors as follows:

(1) If the proportions correspond to a blue region, they are the proportions which give the lightest possible 75S-T Y-stiffened panel which will meet the design conditions

(2) If the proportions correspond to a red region, they are the lightest possible at the ratio of stiffener thickness to skin thickness given by that particular chart, but some other thickness ratio would give a lighter design

(3) If the proportions correspond to a white region, the proportions meet the design conditions, but they are not the lightest which will meet the conditions

Because in many cases the proportions may be varied somewhat from those indicated by the red and blue regions with little change in the

value of the stress that can be carried, too much importance should not be attached to the exact proportions indicated by the colors to have minimum weight. In any particular case for which a deviation from the minimum-weight proportions is made, however, caution dictates that the weight penalty associated with this deviation be determined.

The development of the direct-reading charts is described in the appendix.

USE OF THE DIRECT-READING DESIGN CHARTS

The manner of using the direct-reading design charts depends in some measure on the desired degree of precision of interpolation among the curves. For many purposes, interpolation by inspection is of adequate accuracy, and the use of the charts requires only the calculation of the values of the design parameters P_1/t_s and $\frac{P_1}{L/\sqrt{c}}$ to permit the desired proportions to be read directly from the curves. The proportions for minimum weight, moreover, may be found directly as those corresponding to the blue region on the curves.

If more accurate interpolation is desired, a plot can readily be made of H/t_w , $\bar{\sigma}_F$, and σ_{cr} against S/t_s at the given values of P_1/t and $\frac{P_1}{L/\sqrt{c}}$ and the proportions can be picked from it. (This plot is similar to that which results from the use of the minimum-weight design procedure with the previously available design charts, references 4 to 6.) On a plot of this type, the proportions for minimum weight correspond to those associated with the highest value of $\bar{\sigma}_F$.

As a check on the accuracy of interpolation, the cross-sectional area per inch of width of the design may be determined from the values of t/t_s given in tables 2 to 6 and the value of the intensity of loading that can be carried on this cross-sectional area per inch at the value of $\bar{\sigma}_F$ given by the charts may then be compared with the design value of P_1 .

ILLUSTRATIVE EXAMPLE

In order to illustrate the use of the direct-reading design charts and the simplicity of the computations associated with them compared with those required with previous charts, a panel will be designed for minimum weight to meet the same principal design conditions used to illustrate the design procedures in reference 4, namely:

1. Intensity of loading $P_1 = 3.0$ kips per inch
2. Skin thickness $t_s = 0.064$ inch
3. Effective length $\frac{L}{\sqrt{c}} = 20$ inches

As was pointed out in reference 6, an intensity of loading as small as 3.0 kips per inch may require a stiffener thickness smaller than can be successfully extruded. The value of P_1 of 3.0 kips per inch is retained for the example, however, in order to provide a ready comparison with the examples of reference 4.

First the values of P_1/t_S and $\frac{P_1}{L/\sqrt{c}}$ are calculated

$$\begin{aligned}\frac{P_1}{t_S} &= \frac{3.0}{0.064} \\ &= 46.9 \text{ ksi}\end{aligned}$$

$$\begin{aligned}\frac{P_1}{L/\sqrt{c}} &= \frac{3.0}{20/\sqrt{1}} \\ &= 0.15 \text{ ksi}\end{aligned}$$

Then a trial value of t_W/t_S is assumed (for the example $\frac{t_W}{t_S} = 0.51$ will be used). In the chart for this value of t_W/t_S (fig. 3) the points corresponding to the design values of P_1/t_S and $\frac{P_1}{L/\sqrt{c}}$ lie above the red line at $\frac{H}{t_W} \leq 44.6$ (or $\frac{b_W}{t_W} \leq 24$) and below the red line at $\frac{H}{t_W} \geq 49.9$ (or $\frac{b_W}{t_W} \geq 27$). Accordingly, the value of H/t_W for minimum weight for $\frac{t_W}{t_S} = 0.51$ lies between 44.6 and 49.9 and, because these values are established by red lines, not blue lines, some value of t_W/t_S other than 0.51 will give less weight. Inspection of the charts for other values of t_W/t_S reveals that at the given design values of P_1/t_S and $\frac{P_1}{L/\sqrt{c}}$ the blue region lies between $\frac{H}{t_W} = 49.9$ and $\frac{H}{t_W} = 60.7$ and is very near to $\frac{H}{t_W} = 55.3$ in the chart for $\frac{t_W}{t_S} = 0.40$. By interpolation, the panel proportions corresponding to this blue region are found to be $\frac{H}{t_W} \approx 55$, $\frac{S}{t_S} \approx 32.5$, $\frac{b_W}{t_W} \approx 30$, $\frac{b_S}{t_S} \approx 51$, $\sigma_F \approx 34$ ksi, and $\sigma_{cr} \approx 16$ ksi. These proportions, then, are those for minimum weight. The actual panel dimensions can be calculated from these proportions as

$$\begin{aligned}t_W &= \frac{t_W}{t_S} t_S \\ &= 0.40(0.064) \\ &\approx 0.025 \text{ inch}\end{aligned}$$

$$\begin{aligned}
 H &= \frac{H}{t_W} t_W \\
 &= 55(0.025) \\
 &= 1.38 \text{ inches}
 \end{aligned}$$

$$\begin{aligned}
 S &= \frac{S}{t_S} t_S \\
 &= 32.5(0.064) \\
 &= 2.08 \text{ inches}
 \end{aligned}$$

.

and the section properties can be determined from table 2 as

$$\begin{aligned}
 \bar{h} &= \frac{\bar{h}}{t_S} t_S \\
 &= 3.77(0.064) \\
 &= 0.241 \text{ inch}
 \end{aligned}$$

$$\begin{aligned}
 \rho &= \frac{\rho}{t_S} t_S \\
 &= 6.90(0.064) \\
 &= 0.442 \text{ inch}
 \end{aligned}$$

In order to illustrate the use of the direct-reading design charts when more accuracy than that corresponding to interpolation by inspection is desired, a plot has been made (fig. 12) of the values of $\bar{\sigma}_f$, σ_{cr} , and H/t_W given by the charts at the design values of P_1/t_S and $\frac{P_1}{L/\sqrt{C}}$. The proportions which give the highest value of $\bar{\sigma}_f$ can be readily selected from a plot of this kind. (For the example these proportions are so nearly the same as were obtained by inspection that the values will not be repeated; however, the flatness of the curve of $\bar{\sigma}_f$ against S/t_S in fig. 12 shows that, for a fairly wide range of proportions for this particular design, the stress that could be carried would be substantially the same as that for minimum weight.)

As a check on the accuracy of interpolation, the magnitude of \bar{t}/t_g for these proportions can be determined from table 2 and multiplied by the values of t_g and $\bar{\sigma}_f$ for the design. This product should be equal to the design value of P_1 . For the example

$$\bar{\sigma}_f = 34 \text{ ksi}$$

$$\frac{\bar{t}}{t_g} = 1.377$$

and

$$\begin{aligned}\bar{\sigma}_f \frac{\bar{t}}{t_g} t_g &= 34(1.377)(0.064) \\ &= 3.0 \text{ kips per inch}\end{aligned}$$

which agrees with the design value of P_1 originally assumed.

Langley Memorial Aeronautical Laboratory
National Advisory Committee for Aeronautics
Langley Field, Va., March 16, 1948

APPENDIX

DEVELOPMENT OF DIRECT-READING DESIGN CHARTS

In order to be direct-reading, a design chart needs to incorporate all the principal design conditions into its parameters. Previous design charts, such as those of references 4 to 6, have incorporated only the design conditions of compressive load per inch of panel width P_1 and effective length of panel L/\sqrt{C} in the parameter $\frac{P_1}{L/\sqrt{C}}$. Consequently, such charts cannot be used to find a design directly if a particular skin thickness is specified. Because of the trend toward higher speeds and thinner wings and the accompanying requirement of a fairly thick skin to provide high torsional stiffness, the skin thickness tends to become one of the principal design conditions, and hence it too should be incorporated into the parameters used for design charts. In reference 7 a suitable parameter incorporating the skin thickness was found to be P_1/t_S . The design charts of references 4 to 6 may be converted, therefore, to incorporate the skin thickness into their parameters if values of P_1/t_S are found which correspond to the values of $\bar{\sigma}_f$ and $\frac{P_1}{L/\sqrt{C}}$ given by the curves of the charts. These values of P_1/t_S are established by the fact that both the stress $\bar{\sigma}_f$ and the intensity of loading P_1 represented by the curves of these previous charts always correspond to failure of the panel. In other words, on any curve in the charts

$$\bar{\sigma}_f = \frac{P_1}{\bar{t}}$$

where \bar{t} is the cross-sectional area per inch of panel width expressed as an equivalent or average thickness.

If both sides of this equation are multiplied by \bar{t} and divided by the skin thickness t_S (values of \bar{t}/t_S are tabulated in references 4 to 6 for the panel proportions covered by the associated design charts), values of the parameter P_1/t_S are

$$\frac{P_1}{t_S} = \bar{\sigma}_f \frac{\bar{t}}{t_S}$$

The curves of the previous design charts (references 4 to 6) accordingly can be replotted either with their abscissa $\frac{P_1}{L/\sqrt{C}}$ replaced by P_1/t_S (figs. 7 to 11) to give the same type of plot used for the

summary charts of reference 6, or with the ordinate $\bar{\sigma}_f$ replaced by P_1/tg while $\frac{P_1}{L\sqrt{c}}$ is retained as abscissa (figs. 2 to 6). Any point on one of the replotted curves then represents a panel design which satisfies the three conditions of intensity of loading, skin thickness, and effective length of panel. A locus of points for minimum weight can be found, moreover, by a systematic study and can be indicated on the charts, so that designs having the proportions required for minimum weight may be found directly.

The direct-reading design charts presented herein as figures 2 to 6 are cross-plotted, as just described, from figures 12 to 16 of reference 6 for 75S-T aluminum-alloy straight-web Y-stiffened panels.

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TABLE 1.- MATERIAL PROPERTIES AND PROPORTIONS OF
75S-T ALUMINUM-ALLOY PANELS HAVING
STRAIGHT-WEB Y-SECTION STIFFENERS

[For details of stiffener proportions and diameter
and pitch of rivets, see tables 2 to 6; for panel
dimensions, see fig. 1]

| Material properties | | |
|---|----------------|------------------------|
| | Aluminum alloy | σ_{cy} (ksi) |
| Sheet | 75S-T Alclad | 67.3 |
| Stiffeners | 75S-T | 78.2 |
| Proportions | | |
| $\frac{b_W}{t_W} = 0.56 \frac{H}{t_W} - 0.89$ $\frac{H}{t_W} = 1.79 \frac{b_W}{t_W} + 1.6$ $\frac{b_S}{t_S} = \frac{2S}{t_S} - \left(0.58 \frac{H}{t_W} + 3.7 \right) \frac{t_W}{t_S}$ $\frac{S}{t_S} = 0.5 \frac{b_S}{t_S} + \left(0.52 \frac{b_W}{t_W} + 2.3 \right) \frac{t_W}{t_S}$ | | |



TABLE 2.- Y-PANEL PROPERTIES $\frac{b}{c} = 0.40$; $\frac{b}{a} = 9.5$; $\frac{b}{d} = 1.04$; $\frac{b}{e} = 1.06$; $\frac{b}{f} = 0.94$; $\frac{b}{g} = 2.15$; $\frac{b}{h} = 0.69$; $\frac{b}{i} = 1$; $\frac{b}{j} = 1.5$; $\frac{b}{k} = 4.6$

| $\frac{b}{c}$ | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1.0 | 1.496 | 1.512 | 1.527 | 1.542 | 1.557 | 1.571 | 1.585 | 1.598 | 1.612 | 1.624 | 1.637 | 1.649 | 1.661 | 1.673 | 1.685 | 1.696 |
| 1.1 | 1.481 | 1.497 | 1.512 | 1.526 | 1.541 | 1.555 | 1.568 | 1.582 | 1.595 | 1.608 | 1.620 | 1.632 | 1.644 | 1.656 | 1.667 | 1.678 |
| 1.2 | 1.467 | 1.482 | 1.497 | 1.512 | 1.526 | 1.539 | 1.553 | 1.566 | 1.579 | 1.591 | 1.604 | 1.616 | 1.628 | 1.639 | 1.650 | 1.662 |
| 1.3 | 1.454 | 1.469 | 1.483 | 1.497 | 1.511 | 1.525 | 1.538 | 1.551 | 1.564 | 1.576 | 1.588 | 1.600 | 1.612 | 1.623 | 1.635 | 1.646 |
| 1.4 | 1.441 | 1.456 | 1.470 | 1.484 | 1.498 | 1.511 | 1.524 | 1.536 | 1.548 | 1.560 | 1.572 | 1.583 | 1.594 | 1.605 | 1.616 | 1.627 |
| 1.5 | 1.429 | 1.444 | 1.458 | 1.472 | 1.485 | 1.498 | 1.511 | 1.524 | 1.536 | 1.548 | 1.560 | 1.572 | 1.583 | 1.594 | 1.605 | 1.616 |
| 1.6 | 1.418 | 1.432 | 1.446 | 1.460 | 1.473 | 1.486 | 1.499 | 1.511 | 1.523 | 1.535 | 1.547 | 1.558 | 1.569 | 1.580 | 1.591 | 1.602 |
| 1.7 | 1.407 | 1.421 | 1.435 | 1.448 | 1.461 | 1.474 | 1.487 | 1.499 | 1.511 | 1.523 | 1.535 | 1.547 | 1.558 | 1.569 | 1.580 | 1.591 |
| 1.8 | 1.397 | 1.411 | 1.424 | 1.437 | 1.450 | 1.463 | 1.475 | 1.487 | 1.499 | 1.510 | 1.522 | 1.533 | 1.544 | 1.555 | 1.566 | 1.576 |
| 1.9 | 1.388 | 1.401 | 1.414 | 1.427 | 1.440 | 1.452 | 1.464 | 1.476 | 1.488 | 1.499 | 1.510 | 1.521 | 1.532 | 1.543 | 1.554 | 1.564 |
| 2.0 | 1.378 | 1.391 | 1.404 | 1.417 | 1.430 | 1.442 | 1.454 | 1.465 | 1.477 | 1.488 | 1.499 | 1.510 | 1.521 | 1.531 | 1.542 | 1.552 |
| 2.1 | 1.370 | 1.382 | 1.395 | 1.408 | 1.420 | 1.432 | 1.444 | 1.455 | 1.467 | 1.478 | 1.489 | 1.500 | 1.510 | 1.521 | 1.531 | 1.541 |
| 2.2 | 1.361 | 1.374 | 1.386 | 1.399 | 1.411 | 1.423 | 1.434 | 1.445 | 1.457 | 1.468 | 1.479 | 1.489 | 1.500 | 1.510 | 1.520 | 1.530 |
| 2.3 | 1.353 | 1.366 | 1.378 | 1.390 | 1.402 | 1.414 | 1.425 | 1.436 | 1.447 | 1.458 | 1.469 | 1.479 | 1.490 | 1.500 | 1.510 | 1.520 |
| 2.4 | 1.346 | 1.358 | 1.370 | 1.382 | 1.394 | 1.405 | 1.416 | 1.427 | 1.438 | 1.449 | 1.460 | 1.470 | 1.480 | 1.490 | 1.500 | 1.510 |
| 2.5 | 1.338 | 1.350 | 1.362 | 1.374 | 1.385 | 1.397 | 1.408 | 1.419 | 1.430 | 1.440 | 1.451 | 1.461 | 1.471 | 1.481 | 1.491 | 1.500 |
| 2.6 | 1.331 | 1.343 | 1.355 | 1.366 | 1.377 | 1.388 | 1.399 | 1.411 | 1.421 | 1.432 | 1.442 | 1.452 | 1.462 | 1.472 | 1.482 | 1.491 |
| 2.7 | 1.324 | 1.336 | 1.348 | 1.359 | 1.370 | 1.381 | 1.392 | 1.403 | 1.413 | 1.424 | 1.434 | 1.444 | 1.454 | 1.464 | 1.474 | 1.483 |
| 2.8 | 1.317 | 1.329 | 1.341 | 1.352 | 1.363 | 1.374 | 1.385 | 1.395 | 1.406 | 1.416 | 1.426 | 1.436 | 1.446 | 1.456 | 1.466 | 1.475 |
| 2.9 | 1.310 | 1.322 | 1.334 | 1.345 | 1.356 | 1.367 | 1.377 | 1.388 | 1.398 | 1.408 | 1.418 | 1.428 | 1.438 | 1.447 | 1.457 | 1.466 |
| 3.0 | 1.303 | 1.315 | 1.327 | 1.338 | 1.349 | 1.359 | 1.370 | 1.380 | 1.390 | 1.400 | 1.410 | 1.420 | 1.430 | 1.440 | 1.449 | 1.458 |
| 3.1 | 1.296 | 1.308 | 1.320 | 1.331 | 1.342 | 1.352 | 1.363 | 1.373 | 1.383 | 1.393 | 1.403 | 1.413 | 1.423 | 1.432 | 1.442 | 1.451 |
| 3.2 | 1.289 | 1.301 | 1.312 | 1.323 | 1.333 | 1.344 | 1.354 | 1.364 | 1.374 | 1.384 | 1.394 | 1.403 | 1.413 | 1.422 | 1.432 | 1.441 |
| 3.3 | 1.282 | 1.294 | 1.305 | 1.316 | 1.326 | 1.337 | 1.347 | 1.357 | 1.367 | 1.376 | 1.386 | 1.395 | 1.405 | 1.414 | 1.424 | 1.433 |
| 3.4 | 1.275 | 1.287 | 1.298 | 1.309 | 1.319 | 1.329 | 1.339 | 1.349 | 1.358 | 1.368 | 1.377 | 1.386 | 1.395 | 1.404 | 1.413 | 1.422 |
| 3.5 | 1.270 | 1.280 | 1.289 | 1.300 | 1.309 | 1.319 | 1.328 | 1.338 | 1.347 | 1.356 | 1.365 | 1.374 | 1.383 | 1.392 | 1.401 | 1.408 |
| 3.6 | 1.263 | 1.273 | 1.282 | 1.292 | 1.299 | 1.309 | 1.318 | 1.327 | 1.336 | 1.345 | 1.354 | 1.363 | 1.371 | 1.380 | 1.388 | 1.396 |
| 3.7 | 1.256 | 1.266 | 1.275 | 1.284 | 1.293 | 1.302 | 1.311 | 1.320 | 1.329 | 1.338 | 1.347 | 1.355 | 1.364 | 1.372 | 1.380 | 1.388 |
| 3.8 | 1.250 | 1.259 | 1.268 | 1.277 | 1.286 | 1.294 | 1.303 | 1.312 | 1.321 | 1.329 | 1.338 | 1.347 | 1.355 | 1.364 | 1.372 | 1.380 |
| 3.9 | 1.243 | 1.252 | 1.261 | 1.270 | 1.279 | 1.287 | 1.296 | 1.304 | 1.313 | 1.321 | 1.330 | 1.338 | 1.347 | 1.355 | 1.364 | 1.372 |
| 4.0 | 1.237 | 1.245 | 1.254 | 1.263 | 1.271 | 1.280 | 1.288 | 1.297 | 1.305 | 1.313 | 1.321 | 1.330 | 1.338 | 1.346 | 1.355 | 1.364 |
| 4.1 | 1.231 | 1.239 | 1.248 | 1.257 | 1.265 | 1.274 | 1.282 | 1.291 | 1.299 | 1.307 | 1.315 | 1.323 | 1.331 | 1.339 | 1.347 | 1.355 |
| 4.2 | 1.224 | 1.232 | 1.241 | 1.250 | 1.259 | 1.267 | 1.276 | 1.284 | 1.293 | 1.301 | 1.309 | 1.317 | 1.325 | 1.333 | 1.341 | 1.349 |
| 4.3 | 1.218 | 1.226 | 1.234 | 1.243 | 1.251 | 1.260 | 1.268 | 1.276 | 1.285 | 1.293 | 1.301 | 1.309 | 1.317 | 1.325 | 1.333 | 1.341 |
| 4.4 | 1.212 | 1.220 | 1.228 | 1.236 | 1.245 | 1.253 | 1.261 | 1.269 | 1.277 | 1.285 | 1.293 | 1.301 | 1.309 | 1.317 | 1.325 | 1.333 |
| 4.5 | 1.206 | 1.214 | 1.222 | 1.230 | 1.238 | 1.246 | 1.254 | 1.262 | 1.270 | 1.278 | 1.286 | 1.294 | 1.302 | 1.310 | 1.318 | 1.326 |
| 4.6 | 1.199 | 1.207 | 1.215 | 1.223 | 1.231 | 1.239 | 1.247 | 1.255 | 1.263 | 1.271 | 1.279 | 1.287 | 1.295 | 1.303 | 1.311 | 1.319 |
| 4.7 | 1.193 | 1.201 | 1.209 | 1.217 | 1.225 | 1.233 | 1.241 | 1.249 | 1.257 | 1.265 | 1.273 | 1.281 | 1.289 | 1.297 | 1.305 | 1.313 |
| 4.8 | 1.187 | 1.195 | 1.203 | 1.211 | 1.219 | 1.227 | 1.235 | 1.243 | 1.251 | 1.259 | 1.267 | 1.275 | 1.283 | 1.291 | 1.299 | 1.307 |
| 4.9 | 1.181 | 1.189 | 1.197 | 1.205 | 1.213 | 1.221 | 1.229 | 1.237 | 1.245 | 1.253 | 1.261 | 1.269 | 1.277 | 1.285 | 1.293 | 1.301 |
| 5.0 | 1.175 | 1.183 | 1.191 | 1.199 | 1.207 | 1.215 | 1.223 | 1.231 | 1.239 | 1.247 | 1.255 | 1.263 | 1.271 | 1.279 | 1.287 | 1.295 |
| 5.1 | 1.170 | 1.178 | 1.186 | 1.194 | 1.202 | 1.210 | 1.218 | 1.226 | 1.234 | 1.242 | 1.250 | 1.258 | 1.266 | 1.274 | 1.282 | 1.290 |
| 5.2 | 2.788 | 2.979 | 3.172 | 3.369 | 3.571 | 3.777 | 3.979 | 4.185 | 4.394 | 4.607 | 4.823 | 5.038 | 5.256 | 5.477 | 5.700 | 5.922 |
| 5.3 | 2.781 | 2.971 | 3.162 | 3.354 | 3.554 | 3.754 | 3.954 | 4.154 | 4.354 | 4.554 | 4.754 | 4.954 | 5.154 | 5.354 | 5.554 | 5.754 |
| 5.4 | 2.697 | 2.881 | 3.071 | 3.264 | 3.459 | 3.654 | 3.854 | 4.059 | 4.264 | 4.470 | 4.673 | 4.876 | 5.079 | 5.282 | 5.485 | 5.688 |
| 5.5 | 2.655 | 2.838 | 3.022 | 3.210 | 3.403 | 3.600 | 3.797 | 3.994 | 4.201 | 4.406 | 4.611 | 4.814 | 5.017 | 5.220 | 5.423 | 5.626 |
| 5.6 | 2.612 | 2.793 | 2.976 | 3.162 | 3.354 | 3.545 | 3.741 | 3.940 | 4.141 | 4.346 | 4.551 | 4.754 | 4.957 | 5.160 | 5.363 | 5.566 |
| 5.7 | 2.572 | 2.751 | 2.932 | 3.118 | 3.304 | 3.494 | 3.688 | 3.886 | 4.083 | 4.284 | 4.488 | 4.695 | 4.901 | 5.104 | 5.307 | 5.510 |
| 5.8 | 2.534 | 2.709 | 2.888 | 3.072 | 3.257 | 3.445 | 3.634 | 3.830 | 4.026 | 4.225 | 4.428 | 4.635 | 4.834 | 5.037 | 5.240 | 5.443 |
| 5.9 | 2.496 | 2.669 | 2.847 | 3.026 | 3.209 | 3.395 | 3.583 | 3.778 | 3.974 | 4.166 | 4.367 | 4.567 | 4.770 | 4.977 | 5.180 | 5.383 |
| 6.0 | 2.461 | 2.633 | 2.805 | 2.981 | 3.164 | 3.350 | 3.538 | 3.725 | 3.918 | 4.110 | 4.304 | 4.500 | 4.711 | 4.916 | 5.118 | 5.320 |
| 6.1 | 2.429 | 2.599 | 2.767 | 2.943 | 3.123 | 3.305 | 3.490 | 3.675 | 3.867 | 4.058 | 4.252 | 4.449 | 4.650 | 4.854 | 5.057 | 5.260 |
| 6.2 | 2.398 | 2.566 | 2.732 | 2.908 | 3.086 | 3.267 | 3.450 | 3.636 | 3.826 | 4.016 | 4.209 | 4.404 | 4.601 | 4.800 | 5.000 | 5.200 |
| 6.3 | 2.368 | 2.534 | 2.699 | 2.874 | 3.051 | 3.231 | 3.413 | 3.598 | 3.786 | 3.976 | 4.168 | 4.362 | 4.558 | 4.756 | 4.955 | 5.154 |
| 6.4 | 2.339 | 2.503 | 2.666 | 2.840 | 3.017 | 3.197 | 3.380 | 3.566 | 3.754 | 3.946 | 4.140 | 4.336 | 4.534 | 4.734 | 4.937 | 5.139 |
| 6.5 | 2.310 | 2.473 | 2.636 | 2.810 | 2.987 | 3.167 | 3.350 | 3.537 | 3.726 | 3.918 | 4.112 | 4.308 | 4.506 | 4.706 | 4.909 | 5.112 |
| 6.6 | 2.282 | 2.444 | 2.606 | 2.780 | 2.957 | 3.137 | 3.320 | 3.506 | 3.695 | 3.886 | 4.079 | 4.274 | 4.471 | 4.670 | 4.871 | 5.074 |
| 6.7 | 2.254 | 2.416 | 2.578 | 2.752 | 2.929 | 3.108 | 3.291 | 3.477 | 3.666 | 3.857 | 4.050 | 4.245 | 4.442 | 4.641 | 4.842 | 5.045 |
| 6.8 | 2.227 | 2.388 | 2.550 | 2.724 | 2.901 | 3.079 | 3.262 | 3.448 | 3.636 | 3.826 | 4.018 | 4.212 | 4.408 | 4.606 | 4.806 | 5.007 |
| 6.9 | 2.201 | 2.361 | 2.523 | 2.696 | 2.873 | 3.050 | 3.232 | 3.417 | 3.604 | 3.794 | 3.986 | 4.180 | 4.376 | 4.574 | 4.774 | 4.975 |
| 7.0 | 2.175 | 2.335 | 2.497 | 2.670 | 2.847 | 3.024 | 3.206 | 3.391 | 3.578 | 3.768 | 3.960 | 4.154 | 4.350 | 4.548 | 4.748 | 4.949 |
| 7.1 | 2.150 | 2.309 | 2.471 | 2.644 | 2.821 | 3.000 | 3.1 | | | | | | | | | |

TABLE 3.- X-PANEL PROPERTIES $\frac{b}{c} = 0.51$; $\frac{b}{a} = 0.5$; $\frac{b}{d} = 1.04$; $\frac{b}{e} = 1.06$; $\frac{b}{f} = 0.94$; $\frac{b}{g} = 2.13$; $\frac{b}{h} = 0.69$; $\frac{b}{i} = 1$; $\frac{b}{j} = 2.0$; $\frac{b}{k} = 6.0$

| $\frac{b}{c}$ | 13 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 23 | 1.749 | 1.770 | 1.792 | 1.812 | 1.832 | 1.852 | 1.871 | 1.889 | 1.907 | 1.924 | 1.941 | 1.958 | 1.974 | 1.989 | 2.004 | 2.019 |
| 24 | 1.728 | 1.749 | 1.770 | 1.790 | 1.810 | 1.829 | 1.848 | 1.866 | 1.884 | 1.901 | 1.918 | 1.934 | 1.950 | 1.965 | 1.981 | 1.996 |
| 25 | 1.708 | 1.729 | 1.750 | 1.770 | 1.789 | 1.808 | 1.827 | 1.845 | 1.862 | 1.880 | 1.896 | 1.912 | 1.928 | 1.944 | 1.959 | 1.974 |
| 26 | 1.689 | 1.710 | 1.730 | 1.750 | 1.769 | 1.788 | 1.807 | 1.825 | 1.842 | 1.860 | 1.876 | 1.892 | 1.908 | 1.923 | 1.938 | 1.953 |
| 27 | 1.671 | 1.692 | 1.712 | 1.731 | 1.750 | 1.769 | 1.787 | 1.805 | 1.822 | 1.840 | 1.856 | 1.872 | 1.888 | 1.903 | 1.918 | 1.933 |
| 28 | 1.654 | 1.674 | 1.694 | 1.714 | 1.732 | 1.751 | 1.769 | 1.786 | 1.803 | 1.820 | 1.836 | 1.852 | 1.868 | 1.883 | 1.898 | 1.912 |
| 29 | 1.638 | 1.658 | 1.678 | 1.697 | 1.715 | 1.734 | 1.751 | 1.769 | 1.785 | 1.802 | 1.818 | 1.834 | 1.849 | 1.864 | 1.879 | 1.893 |
| 30 | 1.623 | 1.642 | 1.662 | 1.681 | 1.699 | 1.717 | 1.734 | 1.752 | 1.768 | 1.785 | 1.801 | 1.816 | 1.832 | 1.847 | 1.861 | 1.875 |
| 31 | 1.608 | 1.628 | 1.647 | 1.665 | 1.683 | 1.701 | 1.718 | 1.735 | 1.752 | 1.768 | 1.784 | 1.799 | 1.815 | 1.830 | 1.844 | 1.858 |
| 32 | 1.594 | 1.613 | 1.632 | 1.650 | 1.668 | 1.686 | 1.703 | 1.720 | 1.736 | 1.752 | 1.768 | 1.783 | 1.798 | 1.813 | 1.827 | 1.841 |
| 33 | 1.581 | 1.600 | 1.618 | 1.636 | 1.654 | 1.671 | 1.688 | 1.705 | 1.721 | 1.737 | 1.752 | 1.768 | 1.783 | 1.797 | 1.811 | 1.826 |
| 34 | 1.568 | 1.587 | 1.605 | 1.623 | 1.640 | 1.657 | 1.674 | 1.691 | 1.707 | 1.722 | 1.738 | 1.753 | 1.767 | 1.782 | 1.796 | 1.810 |
| 35 | 1.556 | 1.574 | 1.592 | 1.610 | 1.627 | 1.644 | 1.661 | 1.677 | 1.693 | 1.708 | 1.723 | 1.738 | 1.753 | 1.767 | 1.781 | 1.795 |
| 36 | 1.544 | 1.562 | 1.580 | 1.598 | 1.615 | 1.631 | 1.648 | 1.664 | 1.680 | 1.695 | 1.710 | 1.725 | 1.739 | 1.753 | 1.767 | 1.781 |
| 37 | 1.533 | 1.551 | 1.569 | 1.586 | 1.602 | 1.619 | 1.635 | 1.651 | 1.666 | 1.682 | 1.697 | 1.711 | 1.726 | 1.740 | 1.753 | 1.767 |
| 38 | 1.522 | 1.540 | 1.557 | 1.574 | 1.591 | 1.607 | 1.623 | 1.639 | 1.654 | 1.669 | 1.684 | 1.698 | 1.713 | 1.727 | 1.740 | 1.754 |
| 39 | 1.512 | 1.529 | 1.546 | 1.563 | 1.580 | 1.596 | 1.611 | 1.627 | 1.642 | 1.657 | 1.672 | 1.686 | 1.700 | 1.714 | 1.727 | 1.741 |
| 40 | 1.502 | 1.519 | 1.536 | 1.553 | 1.569 | 1.585 | 1.600 | 1.616 | 1.631 | 1.646 | 1.660 | 1.674 | 1.688 | 1.702 | 1.715 | 1.729 |
| 41 | 1.483 | 1.500 | 1.516 | 1.533 | 1.549 | 1.565 | 1.581 | 1.597 | 1.612 | 1.627 | 1.641 | 1.655 | 1.669 | 1.683 | 1.696 | 1.710 |
| 42 | 1.466 | 1.482 | 1.498 | 1.514 | 1.529 | 1.545 | 1.560 | 1.575 | 1.589 | 1.603 | 1.617 | 1.630 | 1.644 | 1.657 | 1.670 | 1.683 |
| 43 | 1.450 | 1.466 | 1.481 | 1.497 | 1.512 | 1.527 | 1.542 | 1.557 | 1.571 | 1.585 | 1.599 | 1.612 | 1.625 | 1.638 | 1.651 | 1.664 |
| 44 | 1.436 | 1.450 | 1.465 | 1.480 | 1.495 | 1.510 | 1.524 | 1.538 | 1.552 | 1.565 | 1.579 | 1.592 | 1.605 | 1.618 | 1.631 | 1.644 |
| 45 | 1.420 | 1.436 | 1.451 | 1.465 | 1.480 | 1.494 | 1.508 | 1.521 | 1.535 | 1.548 | 1.561 | 1.574 | 1.587 | 1.599 | 1.612 | 1.625 |
| 46 | 1.407 | 1.422 | 1.437 | 1.450 | 1.464 | 1.478 | 1.492 | 1.506 | 1.519 | 1.532 | 1.545 | 1.558 | 1.570 | 1.583 | 1.595 | 1.608 |
| 47 | 1.394 | 1.409 | 1.423 | 1.437 | 1.451 | 1.465 | 1.478 | 1.491 | 1.504 | 1.517 | 1.530 | 1.542 | 1.554 | 1.566 | 1.578 | 1.590 |
| 48 | 1.383 | 1.397 | 1.411 | 1.425 | 1.438 | 1.452 | 1.465 | 1.478 | 1.490 | 1.503 | 1.515 | 1.527 | 1.539 | 1.551 | 1.563 | 1.574 |
| 49 | 1.372 | 1.386 | 1.399 | 1.413 | 1.426 | 1.439 | 1.452 | 1.464 | 1.477 | 1.489 | 1.501 | 1.513 | 1.525 | 1.537 | 1.548 | 1.559 |
| 50 | 1.362 | 1.375 | 1.388 | 1.401 | 1.414 | 1.427 | 1.439 | 1.452 | 1.464 | 1.476 | 1.488 | 1.500 | 1.511 | 1.523 | 1.534 | 1.545 |
| 51 | 1.352 | 1.365 | 1.377 | 1.390 | 1.402 | 1.414 | 1.426 | 1.438 | 1.449 | 1.461 | 1.472 | 1.483 | 1.494 | 1.505 | 1.516 | 1.527 |
| 52 | 1.343 | 1.355 | 1.367 | 1.379 | 1.391 | 1.402 | 1.414 | 1.425 | 1.436 | 1.447 | 1.458 | 1.469 | 1.479 | 1.490 | 1.500 | 1.511 |
| 53 | 1.334 | 1.345 | 1.356 | 1.367 | 1.378 | 1.389 | 1.400 | 1.411 | 1.421 | 1.432 | 1.442 | 1.452 | 1.462 | 1.472 | 1.482 | 1.492 |
| 54 | 1.325 | 1.336 | 1.346 | 1.356 | 1.366 | 1.376 | 1.386 | 1.396 | 1.406 | 1.416 | 1.426 | 1.436 | 1.445 | 1.455 | 1.465 | 1.475 |
| 55 | 1.316 | 1.326 | 1.336 | 1.345 | 1.355 | 1.364 | 1.374 | 1.383 | 1.393 | 1.402 | 1.411 | 1.421 | 1.430 | 1.439 | 1.448 | 1.457 |
| 56 | 1.308 | 1.317 | 1.326 | 1.335 | 1.344 | 1.353 | 1.362 | 1.371 | 1.380 | 1.389 | 1.398 | 1.407 | 1.416 | 1.425 | 1.434 | 1.443 |
| 57 | 1.299 | 1.308 | 1.317 | 1.326 | 1.335 | 1.344 | 1.353 | 1.362 | 1.371 | 1.380 | 1.389 | 1.398 | 1.407 | 1.416 | 1.425 | 1.434 |
| 58 | 1.289 | 1.300 | 1.311 | 1.322 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 | 1.377 | 1.386 | 1.395 | 1.404 | 1.413 | 1.422 | 1.431 |
| 59 | 1.280 | 1.291 | 1.301 | 1.312 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 | 1.377 | 1.386 | 1.395 | 1.403 | 1.412 | 1.421 |
| 60 | 1.271 | 1.281 | 1.292 | 1.302 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 | 1.377 | 1.386 | 1.395 | 1.404 | 1.413 |
| 61 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 | 1.377 | 1.386 | 1.395 | 1.404 |
| 62 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 | 1.377 | 1.386 | 1.395 |
| 63 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 | 1.377 | 1.386 |
| 64 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 | 1.377 |
| 65 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 | 1.368 |
| 66 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 | 1.359 |
| 67 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 | 1.350 |
| 68 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 | 1.341 |
| 69 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 | 1.331 |
| 70 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 | 1.321 |
| 71 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 | 1.311 |
| 72 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 | 1.301 |
| 73 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 | 1.291 |
| 74 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 | 1.281 |
| 75 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 | 1.271 |
| 76 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 | 1.262 |
| 77 | 1.119 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 | 1.253 |
| 78 | 1.110 | 1.119 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 | 1.244 |
| 79 | 1.101 | 1.110 | 1.119 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 | 1.235 |
| 80 | 1.092 | 1.101 | 1.110 | 1.119 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 | 1.226 |
| 81 | 1.083 | 1.092 | 1.101 | 1.110 | 1.119 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 | 1.217 |
| 82 | 1.074 | 1.083 | 1.092 | 1.101 | 1.110 | 1.119 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 | 1.208 |
| 83 | 1.065 | 1.074 | 1.083 | 1.092 | 1.101 | 1.110 | 1.119 | 1.128 | 1.137 | 1.146 | 1.155 | 1.164 | 1.173 | 1.182 | 1.191 | 1.200 |
| 84 | 1.056 | 1.065 | 1.074 | 1.083 | 1.092 | 1.101 | 1.110 | 1.119 | | | | | | | | |

TABLE 4.- T-PANEL PROPERTIES $\frac{b}{c} = 0.63$; $\frac{d}{c} = 9.3$; $\frac{h}{c} = 1.04$; $\frac{t}{c} = 1.06$; $\frac{b_1}{c} = 0.94$; $\frac{b_2}{c} = 2.13$; $\frac{b_3}{c} = 0.69$; $\frac{r}{c} = 1$; $\frac{d}{c} = 1.8$; $\frac{p}{c} = 6.1$

| $\frac{t}{c}$ | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 23 | 2.059 | 2.080 | 2.115 | 2.142 | 2.167 | 2.192 | 2.216 | 2.240 | 2.263 | 2.285 | 2.306 | 2.327 | 2.347 | 2.366 | 2.385 | 2.404 |
| 24 | 2.051 | 2.059 | 2.067 | 2.113 | 2.139 | 2.164 | 2.188 | 2.211 | 2.234 | 2.255 | 2.277 | 2.297 | 2.316 | 2.337 | 2.357 | 2.375 |
| 25 | 2.005 | 2.033 | 2.060 | 2.086 | 2.112 | 2.136 | 2.160 | 2.184 | 2.206 | 2.228 | 2.249 | 2.270 | 2.290 | 2.309 | 2.328 | 2.347 |
| 26 | 1.956 | 1.984 | 2.010 | 2.036 | 2.061 | 2.085 | 2.109 | 2.132 | 2.154 | 2.176 | 2.197 | 2.217 | 2.238 | 2.257 | 2.276 | 2.294 |
| 27 | 1.931 | 1.958 | 1.983 | 2.008 | 2.032 | 2.056 | 2.080 | 2.103 | 2.125 | 2.147 | 2.168 | 2.189 | 2.210 | 2.229 | 2.248 | 2.266 |
| 28 | 1.912 | 1.938 | 1.963 | 1.987 | 2.010 | 2.033 | 2.056 | 2.078 | 2.100 | 2.121 | 2.142 | 2.163 | 2.184 | 2.204 | 2.223 | 2.242 |
| 29 | 1.892 | 1.918 | 1.943 | 1.967 | 1.990 | 2.013 | 2.036 | 2.058 | 2.080 | 2.101 | 2.122 | 2.143 | 2.164 | 2.184 | 2.203 | 2.222 |
| 30 | 1.872 | 1.898 | 1.924 | 1.948 | 1.971 | 1.994 | 2.017 | 2.039 | 2.061 | 2.082 | 2.103 | 2.124 | 2.145 | 2.165 | 2.184 | 2.203 |
| 31 | 1.853 | 1.879 | 1.904 | 1.928 | 1.951 | 1.974 | 1.997 | 2.019 | 2.041 | 2.062 | 2.083 | 2.104 | 2.125 | 2.145 | 2.164 | 2.183 |
| 32 | 1.834 | 1.861 | 1.886 | 1.909 | 1.932 | 1.955 | 1.977 | 1.999 | 2.021 | 2.042 | 2.063 | 2.084 | 2.105 | 2.125 | 2.144 | 2.163 |
| 33 | 1.815 | 1.842 | 1.867 | 1.890 | 1.913 | 1.936 | 1.958 | 1.980 | 2.002 | 2.023 | 2.044 | 2.065 | 2.086 | 2.106 | 2.125 | 2.144 |
| 34 | 1.796 | 1.823 | 1.848 | 1.871 | 1.894 | 1.917 | 1.939 | 1.961 | 1.982 | 2.003 | 2.024 | 2.045 | 2.066 | 2.086 | 2.105 | 2.124 |
| 35 | 1.777 | 1.804 | 1.829 | 1.852 | 1.875 | 1.897 | 1.919 | 1.940 | 1.961 | 1.982 | 2.003 | 2.024 | 2.045 | 2.065 | 2.084 | 2.103 |
| 36 | 1.758 | 1.785 | 1.810 | 1.833 | 1.856 | 1.878 | 1.900 | 1.921 | 1.942 | 1.963 | 1.984 | 2.005 | 2.025 | 2.045 | 2.064 | 2.083 |
| 37 | 1.739 | 1.766 | 1.791 | 1.814 | 1.837 | 1.859 | 1.881 | 1.902 | 1.923 | 1.944 | 1.965 | 1.986 | 2.006 | 2.026 | 2.045 | 2.064 |
| 38 | 1.720 | 1.747 | 1.772 | 1.795 | 1.818 | 1.840 | 1.862 | 1.883 | 1.904 | 1.925 | 1.946 | 1.967 | 1.987 | 2.007 | 2.026 | 2.045 |
| 39 | 1.701 | 1.728 | 1.753 | 1.776 | 1.799 | 1.821 | 1.843 | 1.864 | 1.885 | 1.906 | 1.927 | 1.948 | 1.968 | 1.988 | 2.007 | 2.026 |
| 40 | 1.682 | 1.709 | 1.734 | 1.757 | 1.780 | 1.802 | 1.824 | 1.845 | 1.866 | 1.887 | 1.908 | 1.929 | 1.949 | 1.969 | 1.988 | 2.007 |
| 41 | 1.663 | 1.690 | 1.715 | 1.738 | 1.761 | 1.783 | 1.805 | 1.826 | 1.847 | 1.868 | 1.889 | 1.910 | 1.930 | 1.950 | 1.969 | 1.988 |
| 42 | 1.644 | 1.671 | 1.696 | 1.719 | 1.742 | 1.764 | 1.786 | 1.807 | 1.828 | 1.849 | 1.870 | 1.891 | 1.911 | 1.931 | 1.950 | 1.969 |
| 43 | 1.625 | 1.652 | 1.677 | 1.700 | 1.723 | 1.745 | 1.767 | 1.788 | 1.809 | 1.830 | 1.851 | 1.872 | 1.892 | 1.912 | 1.931 | 1.950 |
| 44 | 1.606 | 1.633 | 1.658 | 1.681 | 1.704 | 1.726 | 1.748 | 1.769 | 1.790 | 1.811 | 1.832 | 1.853 | 1.873 | 1.893 | 1.912 | 1.931 |
| 45 | 1.587 | 1.614 | 1.639 | 1.662 | 1.685 | 1.707 | 1.729 | 1.750 | 1.771 | 1.792 | 1.813 | 1.834 | 1.854 | 1.874 | 1.893 | 1.912 |
| 46 | 1.568 | 1.595 | 1.620 | 1.643 | 1.666 | 1.688 | 1.710 | 1.731 | 1.752 | 1.773 | 1.794 | 1.815 | 1.835 | 1.855 | 1.874 | 1.893 |
| 47 | 1.549 | 1.576 | 1.601 | 1.624 | 1.647 | 1.669 | 1.691 | 1.712 | 1.733 | 1.754 | 1.775 | 1.796 | 1.816 | 1.836 | 1.855 | 1.874 |
| 48 | 1.530 | 1.557 | 1.582 | 1.605 | 1.628 | 1.650 | 1.672 | 1.693 | 1.714 | 1.735 | 1.756 | 1.777 | 1.797 | 1.817 | 1.836 | 1.855 |
| 49 | 1.511 | 1.538 | 1.563 | 1.586 | 1.609 | 1.631 | 1.652 | 1.673 | 1.694 | 1.715 | 1.736 | 1.757 | 1.777 | 1.797 | 1.816 | 1.835 |
| 50 | 1.492 | 1.519 | 1.544 | 1.567 | 1.590 | 1.612 | 1.633 | 1.654 | 1.675 | 1.696 | 1.717 | 1.738 | 1.758 | 1.778 | 1.797 | 1.816 |
| 51 | 1.473 | 1.500 | 1.525 | 1.548 | 1.571 | 1.593 | 1.614 | 1.635 | 1.656 | 1.677 | 1.698 | 1.719 | 1.739 | 1.759 | 1.778 | 1.797 |
| 52 | 1.454 | 1.481 | 1.506 | 1.529 | 1.552 | 1.574 | 1.595 | 1.616 | 1.637 | 1.658 | 1.679 | 1.699 | 1.720 | 1.739 | 1.758 | 1.777 |
| 53 | 1.435 | 1.462 | 1.487 | 1.510 | 1.533 | 1.555 | 1.576 | 1.597 | 1.618 | 1.639 | 1.660 | 1.681 | 1.701 | 1.721 | 1.740 | 1.759 |
| 54 | 1.416 | 1.443 | 1.468 | 1.491 | 1.514 | 1.536 | 1.557 | 1.578 | 1.599 | 1.620 | 1.641 | 1.662 | 1.682 | 1.702 | 1.721 | 1.740 |
| 55 | 1.397 | 1.424 | 1.449 | 1.472 | 1.495 | 1.517 | 1.538 | 1.559 | 1.580 | 1.601 | 1.622 | 1.643 | 1.663 | 1.683 | 1.702 | 1.721 |
| 56 | 1.378 | 1.405 | 1.430 | 1.453 | 1.476 | 1.498 | 1.519 | 1.540 | 1.561 | 1.582 | 1.603 | 1.624 | 1.644 | 1.664 | 1.683 | 1.702 |
| 57 | 1.359 | 1.386 | 1.411 | 1.434 | 1.457 | 1.479 | 1.500 | 1.521 | 1.542 | 1.563 | 1.584 | 1.605 | 1.625 | 1.645 | 1.664 | 1.683 |
| 58 | 1.340 | 1.367 | 1.392 | 1.415 | 1.438 | 1.460 | 1.481 | 1.502 | 1.523 | 1.544 | 1.565 | 1.586 | 1.606 | 1.626 | 1.645 | 1.664 |
| 59 | 1.321 | 1.348 | 1.373 | 1.396 | 1.419 | 1.441 | 1.462 | 1.483 | 1.504 | 1.525 | 1.546 | 1.567 | 1.587 | 1.607 | 1.626 | 1.645 |
| 60 | 1.302 | 1.329 | 1.354 | 1.377 | 1.399 | 1.421 | 1.442 | 1.463 | 1.484 | 1.505 | 1.526 | 1.547 | 1.567 | 1.587 | 1.606 | 1.625 |
| 61 | 1.283 | 1.310 | 1.335 | 1.358 | 1.380 | 1.402 | 1.423 | 1.444 | 1.465 | 1.486 | 1.507 | 1.528 | 1.548 | 1.568 | 1.587 | 1.606 |
| 62 | 1.264 | 1.291 | 1.316 | 1.339 | 1.361 | 1.383 | 1.404 | 1.425 | 1.446 | 1.467 | 1.488 | 1.509 | 1.529 | 1.549 | 1.568 | 1.587 |
| 63 | 1.245 | 1.272 | 1.297 | 1.320 | 1.342 | 1.364 | 1.385 | 1.406 | 1.427 | 1.448 | 1.469 | 1.490 | 1.510 | 1.530 | 1.549 | 1.568 |
| 64 | 1.226 | 1.253 | 1.278 | 1.301 | 1.323 | 1.345 | 1.366 | 1.387 | 1.408 | 1.429 | 1.450 | 1.471 | 1.491 | 1.511 | 1.530 | 1.549 |
| 65 | 1.207 | 1.234 | 1.259 | 1.282 | 1.304 | 1.326 | 1.347 | 1.368 | 1.389 | 1.410 | 1.431 | 1.452 | 1.472 | 1.492 | 1.511 | 1.530 |
| 66 | 1.188 | 1.215 | 1.240 | 1.263 | 1.285 | 1.307 | 1.328 | 1.349 | 1.370 | 1.391 | 1.412 | 1.433 | 1.453 | 1.473 | 1.492 | 1.511 |
| 67 | 1.169 | 1.196 | 1.221 | 1.244 | 1.266 | 1.288 | 1.309 | 1.330 | 1.351 | 1.372 | 1.393 | 1.414 | 1.434 | 1.454 | 1.473 | 1.492 |
| 68 | 1.150 | 1.177 | 1.202 | 1.225 | 1.247 | 1.269 | 1.290 | 1.311 | 1.332 | 1.353 | 1.374 | 1.395 | 1.415 | 1.435 | 1.454 | 1.473 |
| 69 | 1.131 | 1.158 | 1.183 | 1.206 | 1.228 | 1.250 | 1.271 | 1.292 | 1.313 | 1.334 | 1.355 | 1.376 | 1.396 | 1.416 | 1.435 | 1.454 |
| 70 | 1.112 | 1.139 | 1.164 | 1.187 | 1.209 | 1.231 | 1.252 | 1.273 | 1.294 | 1.315 | 1.336 | 1.357 | 1.377 | 1.397 | 1.416 | 1.435 |
| 71 | 1.093 | 1.120 | 1.145 | 1.168 | 1.190 | 1.212 | 1.233 | 1.254 | 1.275 | 1.296 | 1.317 | 1.338 | 1.358 | 1.378 | 1.397 | 1.416 |
| 72 | 1.074 | 1.101 | 1.126 | 1.149 | 1.171 | 1.193 | 1.214 | 1.235 | 1.256 | 1.277 | 1.298 | 1.319 | 1.339 | 1.359 | 1.378 | 1.397 |
| 73 | 1.055 | 1.082 | 1.107 | 1.130 | 1.152 | 1.174 | 1.195 | 1.216 | 1.237 | 1.258 | 1.279 | 1.300 | 1.320 | 1.340 | 1.359 | 1.378 |
| 74 | 1.036 | 1.063 | 1.088 | 1.111 | 1.133 | 1.155 | 1.176 | 1.197 | 1.218 | 1.239 | 1.260 | 1.281 | 1.301 | 1.321 | 1.340 | 1.359 |
| 75 | 1.017 | 1.044 | 1.069 | 1.092 | 1.114 | 1.136 | 1.157 | 1.178 | 1.199 | 1.220 | 1.241 | 1.262 | 1.282 | 1.302 | 1.321 | 1.340 |
| 76 | 0.998 | 1.025 | 1.050 | 1.073 | 1.095 | 1.117 | 1.138 | 1.159 | 1.180 | 1.201 | 1.222 | 1.243 | 1.263 | 1.283 | 1.302 | 1.321 |
| 77 | 0.979 | 1.006 | 1.031 | 1.054 | 1.076 | 1.098 | 1.119 | 1.140 | 1.161 | 1.182 | 1.203 | 1.224 | 1.244 | 1.264 | 1.283 | 1.302 |
| 78 | 0.960 | 0.987 | 1.012 | 1.035 | 1.057 | 1.079 | 1.100 | 1.121 | 1.142 | 1.163 | 1.184 | 1.205 | 1.225 | 1.245 | 1.264 | 1.283 |
| 79 | 0.941 | 0.968 | 0.993 | 1.016 | 1.038 | 1.060 | 1.081 | 1.102 | 1.123 | 1.144 | 1.165 | 1.186 | 1.206 | 1.226 | 1.245 | 1.264 |
| 80 | 0.922 | 0.949 | 0.974 | 0.997 | 1.019 | 1.041 | 1.062 | 1.083 | 1.104 | 1.125 | 1.146 | 1.167 | 1.187 | 1.207 | 1.226 | 1.245 |
| 81 | 0.903 | 0.930 | 0.955 | 0.978 | 1.000 | 1.022 | 1.043 | 1.064 | 1.085 | 1.106 | 1.127 | 1.148 | 1.168 | 1.188 | 1.207 | 1.226 |
| 82 | 0.884 | 0.911 | 0.936 | 0.959 | 0.981 | 1.003 | 1.024 | 1.045 | 1.066 | 1.087 | 1.108 | 1.129 | 1.149 | 1.169 | 1.188 | 1.207 |
| 83 | 0.865 | 0.892 | 0.917 | 0.940 | 0.962 | 0.984 | 1.005 | 1.026 | 1.047 | 1.068 | 1.089 | 1.110 | 1.130 | 1.150 | 1.169 | 1.188 |
| 84 | 0.846 | 0.873 | 0.898 | 0.921 | 0.943 | 0.965 | 0.986 | 1.007 | 1.028 | 1.049 | 1.070 | 1.091 | 1.111 | 1 | | |

TABLE 5.- Y-PANEL PROPERTIES

 $\frac{b}{c} = 0.79; \frac{b}{a} = 9.5; \frac{b}{d} = 1.04; \frac{b}{e} = 1.06; \frac{b}{f} = 0.96; \frac{b}{g} = 2.13; \frac{b}{h} = 0.69; \frac{b}{i} = 1; \frac{b}{j} = 2.3; \frac{b}{k} = 7.7$

| 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2.517 | 2.554 | 2.590 | 2.626 | 2.662 | 2.698 | 2.734 | 2.770 | 2.778 | 2.806 | 2.832 | 2.858 | 2.883 | 2.907 | 2.931 | 2.953 |
| 2.518 | 2.555 | 2.591 | 2.627 | 2.663 | 2.699 | 2.735 | 2.771 | 2.779 | 2.807 | 2.833 | 2.859 | 2.884 | 2.908 | 2.932 | 2.954 |
| 2.519 | 2.556 | 2.592 | 2.628 | 2.664 | 2.700 | 2.736 | 2.772 | 2.780 | 2.808 | 2.834 | 2.860 | 2.885 | 2.909 | 2.933 | 2.955 |
| 2.520 | 2.557 | 2.593 | 2.629 | 2.665 | 2.701 | 2.737 | 2.773 | 2.781 | 2.809 | 2.835 | 2.861 | 2.886 | 2.910 | 2.934 | 2.956 |
| 2.521 | 2.558 | 2.594 | 2.630 | 2.666 | 2.702 | 2.738 | 2.774 | 2.782 | 2.810 | 2.836 | 2.862 | 2.887 | 2.911 | 2.935 | 2.957 |
| 2.522 | 2.559 | 2.595 | 2.631 | 2.667 | 2.703 | 2.739 | 2.775 | 2.783 | 2.811 | 2.837 | 2.863 | 2.888 | 2.912 | 2.936 | 2.958 |
| 2.523 | 2.560 | 2.596 | 2.632 | 2.668 | 2.704 | 2.740 | 2.776 | 2.784 | 2.812 | 2.838 | 2.864 | 2.889 | 2.913 | 2.937 | 2.959 |
| 2.524 | 2.561 | 2.597 | 2.633 | 2.669 | 2.705 | 2.741 | 2.777 | 2.785 | 2.813 | 2.839 | 2.865 | 2.890 | 2.914 | 2.938 | 2.960 |
| 2.525 | 2.562 | 2.598 | 2.634 | 2.670 | 2.706 | 2.742 | 2.778 | 2.786 | 2.814 | 2.840 | 2.866 | 2.891 | 2.915 | 2.939 | 2.961 |
| 2.526 | 2.563 | 2.599 | 2.635 | 2.671 | 2.707 | 2.743 | 2.779 | 2.787 | 2.815 | 2.841 | 2.867 | 2.892 | 2.916 | 2.940 | 2.962 |
| 2.527 | 2.564 | 2.600 | 2.636 | 2.672 | 2.708 | 2.744 | 2.780 | 2.788 | 2.816 | 2.842 | 2.868 | 2.893 | 2.917 | 2.941 | 2.963 |
| 2.528 | 2.565 | 2.601 | 2.637 | 2.673 | 2.709 | 2.745 | 2.781 | 2.789 | 2.817 | 2.843 | 2.869 | 2.894 | 2.918 | 2.942 | 2.964 |
| 2.529 | 2.566 | 2.602 | 2.638 | 2.674 | 2.710 | 2.746 | 2.782 | 2.790 | 2.818 | 2.844 | 2.870 | 2.895 | 2.919 | 2.943 | 2.965 |
| 2.530 | 2.567 | 2.603 | 2.639 | 2.675 | 2.711 | 2.747 | 2.783 | 2.791 | 2.819 | 2.845 | 2.871 | 2.896 | 2.920 | 2.944 | 2.966 |
| 2.531 | 2.568 | 2.604 | 2.640 | 2.676 | 2.712 | 2.748 | 2.784 | 2.792 | 2.820 | 2.846 | 2.872 | 2.897 | 2.921 | 2.945 | 2.967 |
| 2.532 | 2.569 | 2.605 | 2.641 | 2.677 | 2.713 | 2.749 | 2.785 | 2.793 | 2.821 | 2.847 | 2.873 | 2.898 | 2.922 | 2.946 | 2.968 |
| 2.533 | 2.570 | 2.606 | 2.642 | 2.678 | 2.714 | 2.750 | 2.786 | 2.794 | 2.822 | 2.848 | 2.874 | 2.899 | 2.923 | 2.947 | 2.969 |
| 2.534 | 2.571 | 2.607 | 2.643 | 2.679 | 2.715 | 2.751 | 2.787 | 2.795 | 2.823 | 2.849 | 2.875 | 2.900 | 2.924 | 2.948 | 2.970 |
| 2.535 | 2.572 | 2.608 | 2.644 | 2.680 | 2.716 | 2.752 | 2.788 | 2.796 | 2.824 | 2.850 | 2.876 | 2.901 | 2.925 | 2.949 | 2.971 |
| 2.536 | 2.573 | 2.609 | 2.645 | 2.681 | 2.717 | 2.753 | 2.789 | 2.797 | 2.825 | 2.851 | 2.877 | 2.902 | 2.926 | 2.950 | 2.972 |
| 2.537 | 2.574 | 2.610 | 2.646 | 2.682 | 2.718 | 2.754 | 2.790 | 2.798 | 2.826 | 2.852 | 2.878 | 2.903 | 2.927 | 2.951 | 2.973 |
| 2.538 | 2.575 | 2.611 | 2.647 | 2.683 | 2.719 | 2.755 | 2.791 | 2.799 | 2.827 | 2.853 | 2.879 | 2.904 | 2.928 | 2.952 | 2.974 |
| 2.539 | 2.576 | 2.612 | 2.648 | 2.684 | 2.720 | 2.756 | 2.792 | 2.799 | 2.828 | 2.854 | 2.880 | 2.905 | 2.929 | 2.953 | 2.975 |
| 2.540 | 2.577 | 2.613 | 2.649 | 2.685 | 2.721 | 2.757 | 2.793 | 2.800 | 2.829 | 2.855 | 2.881 | 2.906 | 2.930 | 2.954 | 2.976 |
| 2.541 | 2.578 | 2.614 | 2.650 | 2.686 | 2.722 | 2.758 | 2.794 | 2.801 | 2.830 | 2.856 | 2.882 | 2.907 | 2.931 | 2.955 | 2.977 |
| 2.542 | 2.579 | 2.615 | 2.651 | 2.687 | 2.723 | 2.759 | 2.795 | 2.802 | 2.831 | 2.857 | 2.883 | 2.908 | 2.932 | 2.956 | 2.978 |
| 2.543 | 2.580 | 2.616 | 2.652 | 2.688 | 2.724 | 2.760 | 2.796 | 2.803 | 2.832 | 2.858 | 2.884 | 2.909 | 2.933 | 2.957 | 2.979 |
| 2.544 | 2.581 | 2.617 | 2.653 | 2.689 | 2.725 | 2.761 | 2.797 | 2.804 | 2.833 | 2.859 | 2.885 | 2.910 | 2.934 | 2.958 | 2.980 |
| 2.545 | 2.582 | 2.618 | 2.654 | 2.690 | 2.726 | 2.762 | 2.798 | 2.805 | 2.834 | 2.860 | 2.886 | 2.911 | 2.935 | 2.959 | 2.981 |
| 2.546 | 2.583 | 2.619 | 2.655 | 2.691 | 2.727 | 2.763 | 2.799 | 2.806 | 2.835 | 2.861 | 2.887 | 2.912 | 2.936 | 2.960 | 2.982 |
| 2.547 | 2.584 | 2.620 | 2.656 | 2.692 | 2.728 | 2.764 | 2.800 | 2.807 | 2.836 | 2.862 | 2.888 | 2.913 | 2.937 | 2.961 | 2.983 |
| 2.548 | 2.585 | 2.621 | 2.657 | 2.693 | 2.729 | 2.765 | 2.801 | 2.808 | 2.837 | 2.863 | 2.889 | 2.914 | 2.938 | 2.962 | 2.984 |
| 2.549 | 2.586 | 2.622 | 2.658 | 2.694 | 2.730 | 2.766 | 2.802 | 2.809 | 2.838 | 2.864 | 2.890 | 2.915 | 2.939 | 2.963 | 2.985 |
| 2.550 | 2.587 | 2.623 | 2.659 | 2.695 | 2.731 | 2.767 | 2.803 | 2.810 | 2.839 | 2.865 | 2.891 | 2.916 | 2.940 | 2.964 | 2.986 |
| 2.551 | 2.588 | 2.624 | 2.660 | 2.696 | 2.732 | 2.768 | 2.804 | 2.811 | 2.840 | 2.866 | 2.892 | 2.917 | 2.941 | 2.965 | 2.987 |
| 2.552 | 2.589 | 2.625 | 2.661 | 2.697 | 2.733 | 2.769 | 2.805 | 2.812 | 2.841 | 2.867 | 2.893 | 2.918 | 2.942 | 2.966 | 2.988 |
| 2.553 | 2.590 | 2.626 | 2.662 | 2.698 | 2.734 | 2.770 | 2.806 | 2.813 | 2.842 | 2.868 | 2.894 | 2.919 | 2.943 | 2.967 | 2.989 |
| 2.554 | 2.591 | 2.627 | 2.663 | 2.699 | 2.735 | 2.771 | 2.807 | 2.814 | 2.843 | 2.869 | 2.895 | 2.920 | 2.944 | 2.968 | 2.990 |
| 2.555 | 2.592 | 2.628 | 2.664 | 2.700 | 2.736 | 2.772 | 2.808 | 2.815 | 2.844 | 2.870 | 2.896 | 2.921 | 2.945 | 2.969 | 2.991 |
| 2.556 | 2.593 | 2.629 | 2.665 | 2.701 | 2.737 | 2.773 | 2.809 | 2.816 | 2.845 | 2.871 | 2.897 | 2.922 | 2.946 | 2.970 | 2.992 |
| 2.557 | 2.594 | 2.630 | 2.666 | 2.702 | 2.738 | 2.774 | 2.810 | 2.817 | 2.846 | 2.872 | 2.898 | 2.923 | 2.947 | 2.971 | 2.993 |
| 2.558 | 2.595 | 2.631 | 2.667 | 2.703 | 2.739 | 2.775 | 2.811 | 2.818 | 2.847 | 2.873 | 2.899 | 2.924 | 2.948 | 2.972 | 2.994 |
| 2.559 | 2.596 | 2.632 | 2.668 | 2.704 | 2.740 | 2.776 | 2.812 | 2.819 | 2.848 | 2.874 | 2.900 | 2.925 | 2.949 | 2.973 | 2.995 |
| 2.560 | 2.597 | 2.633 | 2.669 | 2.705 | 2.741 | 2.777 | 2.813 | 2.820 | 2.849 | 2.875 | 2.901 | 2.926 | 2.950 | 2.974 | 2.996 |
| 2.561 | 2.598 | 2.634 | 2.670 | 2.706 | 2.742 | 2.778 | 2.814 | 2.821 | 2.850 | 2.876 | 2.902 | 2.927 | 2.951 | 2.975 | 2.997 |
| 2.562 | 2.599 | 2.635 | 2.671 | 2.707 | 2.743 | 2.779 | 2.815 | 2.822 | 2.851 | 2.877 | 2.903 | 2.928 | 2.952 | 2.976 | 2.998 |
| 2.563 | 2.600 | 2.636 | 2.672 | 2.708 | 2.744 | 2.780 | 2.816 | 2.823 | 2.852 | 2.878 | 2.904 | 2.929 | 2.953 | 2.977 | 2.999 |
| 2.564 | 2.601 | 2.637 | 2.673 | 2.709 | 2.745 | 2.781 | 2.817 | 2.824 | 2.853 | 2.879 | 2.905 | 2.930 | 2.954 | 2.978 | 3.000 |
| 2.565 | 2.602 | 2.638 | 2.674 | 2.710 | 2.746 | 2.782 | 2.818 | 2.825 | 2.854 | 2.880 | 2.906 | 2.931 | 2.955 | 2.979 | 3.001 |
| 2.566 | 2.603 | 2.639 | 2.675 | 2.711 | 2.747 | 2.783 | 2.819 | 2.826 | 2.855 | 2.881 | 2.907 | 2.932 | 2.956 | 2.980 | 3.002 |
| 2.567 | 2.604 | 2.640 | 2.676 | 2.712 | 2.748 | 2.784 | 2.820 | 2.827 | 2.856 | 2.882 | 2.908 | 2.933 | 2.957 | 2.981 | 3.003 |
| 2.568 | 2.605 | 2.641 | 2.677 | 2.713 | 2.749 | 2.785 | 2.821 | 2.828 | 2.857 | 2.883 | 2.909 | 2.934 | 2.958 | 2.982 | 3.004 |
| 2.569 | 2.606 | 2.642 | 2.678 | 2.714 | 2.750 | 2.786 | 2.822 | 2.829 | 2.858 | 2.884 | 2.910 | 2.935 | 2.959 | 2.983 | 3.005 |
| 2.570 | 2.607 | 2.643 | 2.679 | 2.715 | 2.751 | 2.787 | 2.823 | 2.830 | 2.859 | 2.885 | 2.911 | 2.936 | 2.960 | 2.984 | 3.006 |
| 2.571 | 2.608 | 2.644 | 2.680 | 2.716 | 2.752 | 2.788 | 2.824 | 2.831 | 2.860 | 2.886 | 2.912 | 2.937 | 2.961 | 2.985 | 3.007 |
| 2.572 | 2.609 | 2.645 | 2.681 | 2.717 | 2.753 | 2.789 | 2.825 | 2.832 | 2.861 | 2.887 | 2.913 | 2.938 | 2.962 | 2.986 | 3.008 |
| 2.573 | 2.610 | 2.646 | 2.682 | 2.718 | 2.754 | 2.790 | 2.826 | 2.833 | 2.862 | 2.888 | 2.914 | 2.939 | 2.963 | 2.987 | 3.009 |
| 2.574 | 2.611 | 2.647 | 2.683 | 2.719 | 2.755 | 2.791 | 2.827 | 2.834 | 2.863 | 2.889 | 2.915 | 2.940 | 2.964 | 2.988 | 3.010 |
| 2.575 | 2.612 | 2.648 | 2.684 | 2.720 | 2.756 | 2.792 | 2.828 | 2.835 | 2.864 | 2.890 | 2.916 | 2.941 | 2.965 | 2.989 | 3.011 |
| 2.576 | 2.613 | 2.649 | 2.685 | 2.721 | 2.757 | 2.793 | 2.829 | 2.836 | 2.865 | 2.891 | 2.917 | 2.942 | 2.966 | 2.990 | 3.012 |
| 2.577 | 2.614 | 2.650 | 2.686 | 2.722 | 2.758 | 2.794 | 2.830 | 2.837 | 2.866 | 2.892 | 2.918 | 2.943 | 2.967 | 2.991 | 3.013 |
| 2.578 | 2.615 | 2.651 | 2.687 | 2.723 | 2.759 | 2.795 | 2.831 | 2.838 | 2.867 | 2.893 | 2.919 | 2.944 | 2.968 | 2.992 | 3.014 |
| 2.579 | 2.616 | 2.652 | 2.688 | 2.724 | 2.760 | 2.796 | 2.832 | 2.839 | 2.868 | 2.894 | 2.920 | 2.945 | 2.969 | 2.993 | 3.015 |
| 2.580 | 2.617 | 2.653 | 2.689 | 2.725 | 2.761 | 2.797 | 2.833 | 2.840 | 2.869 | 2.895 | 2.921 | 2.946 | 2.970 | 2.994 | 3.016 |
| 2.581 | 2.618 | 2.654 | | | | | | | | | | | | | |

TABLE 6.- Y-PANEL PROPERTIES $\frac{b}{c} = 1.00$; $\frac{b}{a} = 9.3$; $\frac{b}{d} = 1.04$; $\frac{b}{e} = 1.06$; $\frac{b}{f} = 0.94$; $\frac{b}{g} = 2.13$; $\frac{b}{h} = 0.69$; $\frac{b}{i} = 1$; $\frac{d}{c} = 2.4$; $\frac{e}{c} = 7.8$

| | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 18 | 3.177 | 3.225 | 3.270 | 3.313 | 3.355 | 3.395 | 3.433 | 3.470 | 3.505 | 3.539 | 3.572 | 3.604 | 3.634 | 3.663 | 3.692 | 3.719 |
| 19 | 3.131 | 3.178 | 3.223 | 3.267 | 3.309 | 3.349 | 3.387 | 3.424 | 3.459 | 3.494 | 3.527 | 3.559 | 3.590 | 3.619 | 3.648 | 3.676 |
| 20 | 3.086 | 3.133 | 3.179 | 3.222 | 3.264 | 3.304 | 3.343 | 3.380 | 3.416 | 3.450 | 3.483 | 3.515 | 3.547 | 3.578 | 3.608 | 3.633 |
| 21 | 3.043 | 3.090 | 3.136 | 3.179 | 3.221 | 3.261 | 3.300 | 3.338 | 3.373 | 3.408 | 3.441 | 3.474 | 3.506 | 3.537 | 3.567 | 3.592 |
| 22 | 3.002 | 3.049 | 3.095 | 3.138 | 3.180 | 3.220 | 3.259 | 3.296 | 3.333 | 3.367 | 3.401 | 3.433 | 3.465 | 3.496 | 3.527 | 3.553 |
| 23 | 2.963 | 3.010 | 3.055 | 3.098 | 3.140 | 3.181 | 3.219 | 3.257 | 3.293 | 3.328 | 3.362 | 3.394 | 3.426 | 3.457 | 3.488 | 3.514 |
| 24 | 2.925 | 2.972 | 3.017 | 3.060 | 3.102 | 3.142 | 3.181 | 3.219 | 3.255 | 3.290 | 3.324 | 3.356 | 3.388 | 3.418 | 3.448 | 3.477 |
| 25 | 2.888 | 2.935 | 2.980 | 3.023 | 3.065 | 3.105 | 3.144 | 3.182 | 3.218 | 3.253 | 3.287 | 3.320 | 3.352 | 3.383 | 3.413 | 3.441 |
| 26 | 2.853 | 2.900 | 2.944 | 2.987 | 3.029 | 3.069 | 3.108 | 3.146 | 3.183 | 3.217 | 3.251 | 3.284 | 3.316 | 3.347 | 3.377 | 3.405 |
| 27 | 2.819 | 2.865 | 2.910 | 2.953 | 2.995 | 3.035 | 3.074 | 3.111 | 3.148 | 3.183 | 3.217 | 3.249 | 3.281 | 3.312 | 3.342 | 3.371 |
| 28 | 2.786 | 2.833 | 2.877 | 2.920 | 2.962 | 3.002 | 3.040 | 3.078 | 3.114 | 3.149 | 3.183 | 3.216 | 3.248 | 3.279 | 3.309 | 3.338 |
| 29 | 2.755 | 2.801 | 2.845 | 2.888 | 2.929 | 2.969 | 3.008 | 3.045 | 3.081 | 3.117 | 3.150 | 3.183 | 3.215 | 3.246 | 3.276 | 3.305 |
| 30 | 2.725 | 2.770 | 2.814 | 2.857 | 2.898 | 2.938 | 2.977 | 3.014 | 3.050 | 3.085 | 3.119 | 3.152 | 3.184 | 3.215 | 3.245 | 3.274 |
| 31 | 2.695 | 2.741 | 2.785 | 2.827 | 2.868 | 2.908 | 2.946 | 2.983 | 3.019 | 3.054 | 3.088 | 3.121 | 3.153 | 3.184 | 3.214 | 3.243 |
| 32 | 2.667 | 2.712 | 2.756 | 2.798 | 2.838 | 2.878 | 2.917 | 2.954 | 2.990 | 3.025 | 3.058 | 3.091 | 3.123 | 3.154 | 3.184 | 3.213 |
| 33 | 2.640 | 2.684 | 2.728 | 2.770 | 2.810 | 2.850 | 2.888 | 2.925 | 2.961 | 2.996 | 3.029 | 3.062 | 3.094 | 3.125 | 3.155 | 3.184 |
| 34 | 2.613 | 2.657 | 2.701 | 2.742 | 2.783 | 2.822 | 2.860 | 2.897 | 2.933 | 2.968 | 3.001 | 3.034 | 3.066 | 3.097 | 3.127 | 3.156 |
| 35 | 2.587 | 2.631 | 2.674 | 2.716 | 2.756 | 2.795 | 2.833 | 2.870 | 2.906 | 2.941 | 2.974 | 3.007 | 3.039 | 3.070 | 3.100 | 3.129 |
| 36 | 2.562 | 2.605 | 2.648 | 2.689 | 2.729 | 2.768 | 2.806 | 2.843 | 2.879 | 2.914 | 2.948 | 2.981 | 3.013 | 3.044 | 3.074 | 3.103 |
| 37 | 2.538 | 2.581 | 2.624 | 2.665 | 2.705 | 2.744 | 2.782 | 2.818 | 2.854 | 2.889 | 2.922 | 2.955 | 2.987 | 3.018 | 3.048 | 3.077 |
| 38 | 2.515 | 2.557 | 2.599 | 2.640 | 2.680 | 2.719 | 2.757 | 2.793 | 2.829 | 2.864 | 2.897 | 2.930 | 2.962 | 2.993 | 3.023 | 3.052 |
| 39 | 2.492 | 2.534 | 2.576 | 2.617 | 2.656 | 2.695 | 2.733 | 2.769 | 2.805 | 2.840 | 2.873 | 2.906 | 2.938 | 2.969 | 2.999 | 3.028 |
| 40 | 2.470 | 2.511 | 2.553 | 2.594 | 2.633 | 2.672 | 2.710 | 2.746 | 2.782 | 2.817 | 2.850 | 2.883 | 2.915 | 2.946 | 2.976 | 3.005 |
| 41 | 2.448 | 2.489 | 2.530 | 2.571 | 2.610 | 2.649 | 2.687 | 2.723 | 2.759 | 2.794 | 2.827 | 2.860 | 2.892 | 2.923 | 2.953 | 2.982 |
| 42 | 2.426 | 2.467 | 2.508 | 2.549 | 2.588 | 2.627 | 2.665 | 2.701 | 2.737 | 2.772 | 2.805 | 2.838 | 2.870 | 2.901 | 2.931 | 2.960 |
| 43 | 2.405 | 2.445 | 2.486 | 2.527 | 2.566 | 2.605 | 2.643 | 2.679 | 2.715 | 2.750 | 2.783 | 2.816 | 2.848 | 2.879 | 2.909 | 2.938 |
| 44 | 2.384 | 2.424 | 2.465 | 2.506 | 2.545 | 2.584 | 2.622 | 2.658 | 2.694 | 2.729 | 2.762 | 2.795 | 2.827 | 2.858 | 2.888 | 2.917 |
| 45 | 2.363 | 2.403 | 2.444 | 2.485 | 2.524 | 2.563 | 2.601 | 2.637 | 2.673 | 2.708 | 2.741 | 2.774 | 2.806 | 2.837 | 2.867 | 2.896 |
| 46 | 2.342 | 2.382 | 2.423 | 2.464 | 2.503 | 2.542 | 2.580 | 2.616 | 2.652 | 2.687 | 2.720 | 2.753 | 2.785 | 2.816 | 2.846 | 2.875 |
| 47 | 2.321 | 2.361 | 2.402 | 2.443 | 2.482 | 2.521 | 2.559 | 2.595 | 2.631 | 2.666 | 2.699 | 2.732 | 2.764 | 2.795 | 2.825 | 2.854 |
| 48 | 2.300 | 2.340 | 2.381 | 2.422 | 2.461 | 2.500 | 2.538 | 2.574 | 2.610 | 2.645 | 2.678 | 2.711 | 2.743 | 2.774 | 2.804 | 2.833 |
| 49 | 2.279 | 2.319 | 2.360 | 2.401 | 2.440 | 2.479 | 2.517 | 2.553 | 2.589 | 2.624 | 2.657 | 2.690 | 2.722 | 2.753 | 2.783 | 2.812 |
| 50 | 2.258 | 2.298 | 2.339 | 2.380 | 2.419 | 2.458 | 2.496 | 2.532 | 2.568 | 2.603 | 2.636 | 2.669 | 2.701 | 2.732 | 2.762 | 2.791 |
| 51 | 2.237 | 2.277 | 2.318 | 2.359 | 2.398 | 2.437 | 2.475 | 2.511 | 2.547 | 2.582 | 2.615 | 2.648 | 2.680 | 2.711 | 2.741 | 2.770 |
| 52 | 2.216 | 2.256 | 2.297 | 2.338 | 2.377 | 2.416 | 2.454 | 2.490 | 2.526 | 2.561 | 2.594 | 2.627 | 2.659 | 2.690 | 2.720 | 2.749 |
| 53 | 2.195 | 2.235 | 2.276 | 2.317 | 2.356 | 2.395 | 2.433 | 2.469 | 2.505 | 2.540 | 2.573 | 2.606 | 2.638 | 2.669 | 2.699 | 2.728 |
| 54 | 2.174 | 2.214 | 2.255 | 2.296 | 2.335 | 2.374 | 2.412 | 2.448 | 2.484 | 2.519 | 2.552 | 2.585 | 2.617 | 2.648 | 2.678 | 2.707 |
| 55 | 2.153 | 2.193 | 2.234 | 2.275 | 2.314 | 2.353 | 2.391 | 2.427 | 2.463 | 2.498 | 2.531 | 2.564 | 2.596 | 2.627 | 2.657 | 2.686 |
| 56 | 2.132 | 2.172 | 2.213 | 2.254 | 2.293 | 2.332 | 2.370 | 2.406 | 2.442 | 2.477 | 2.510 | 2.543 | 2.575 | 2.606 | 2.636 | 2.665 |
| 57 | 2.111 | 2.151 | 2.192 | 2.233 | 2.272 | 2.311 | 2.349 | 2.385 | 2.421 | 2.456 | 2.489 | 2.522 | 2.554 | 2.585 | 2.615 | 2.644 |
| 58 | 2.090 | 2.130 | 2.171 | 2.212 | 2.251 | 2.290 | 2.328 | 2.364 | 2.400 | 2.435 | 2.468 | 2.501 | 2.533 | 2.564 | 2.594 | 2.623 |
| 59 | 2.069 | 2.109 | 2.150 | 2.191 | 2.230 | 2.269 | 2.307 | 2.343 | 2.379 | 2.414 | 2.447 | 2.480 | 2.512 | 2.543 | 2.573 | 2.602 |
| 60 | 2.048 | 2.088 | 2.129 | 2.170 | 2.209 | 2.248 | 2.286 | 2.322 | 2.358 | 2.393 | 2.426 | 2.459 | 2.491 | 2.522 | 2.552 | 2.581 |
| 61 | 2.027 | 2.067 | 2.108 | 2.149 | 2.188 | 2.227 | 2.265 | 2.301 | 2.337 | 2.372 | 2.405 | 2.438 | 2.470 | 2.501 | 2.531 | 2.560 |
| 62 | 2.006 | 2.046 | 2.087 | 2.128 | 2.167 | 2.206 | 2.244 | 2.280 | 2.316 | 2.351 | 2.384 | 2.417 | 2.449 | 2.480 | 2.510 | 2.539 |
| 63 | 1.985 | 2.025 | 2.066 | 2.107 | 2.146 | 2.185 | 2.223 | 2.259 | 2.295 | 2.330 | 2.363 | 2.396 | 2.428 | 2.459 | 2.489 | 2.518 |
| 64 | 1.964 | 2.004 | 2.045 | 2.086 | 2.125 | 2.164 | 2.202 | 2.238 | 2.274 | 2.309 | 2.342 | 2.375 | 2.407 | 2.438 | 2.468 | 2.497 |
| 65 | 1.943 | 1.983 | 2.024 | 2.065 | 2.104 | 2.143 | 2.181 | 2.217 | 2.253 | 2.288 | 2.321 | 2.354 | 2.386 | 2.417 | 2.447 | 2.476 |
| 66 | 1.922 | 1.962 | 2.003 | 2.044 | 2.083 | 2.122 | 2.160 | 2.196 | 2.232 | 2.267 | 2.300 | 2.333 | 2.365 | 2.396 | 2.426 | 2.455 |
| 67 | 1.901 | 1.941 | 1.982 | 2.023 | 2.062 | 2.101 | 2.139 | 2.175 | 2.211 | 2.246 | 2.279 | 2.312 | 2.344 | 2.375 | 2.405 | 2.434 |
| 68 | 1.880 | 1.920 | 1.961 | 2.002 | 2.041 | 2.080 | 2.118 | 2.154 | 2.190 | 2.225 | 2.258 | 2.291 | 2.323 | 2.354 | 2.384 | 2.413 |
| 69 | 1.859 | 1.899 | 1.940 | 1.981 | 2.020 | 2.059 | 2.097 | 2.133 | 2.169 | 2.204 | 2.237 | 2.270 | 2.302 | 2.333 | 2.363 | 2.392 |
| 70 | 1.838 | 1.878 | 1.919 | 1.960 | 2.000 | 2.039 | 2.077 | 2.113 | 2.149 | 2.184 | 2.217 | 2.250 | 2.282 | 2.313 | 2.343 | 2.372 |
| 71 | 1.817 | 1.857 | 1.898 | 1.939 | 1.979 | 2.018 | 2.056 | 2.092 | 2.128 | 2.163 | 2.196 | 2.229 | 2.261 | 2.292 | 2.322 | 2.351 |
| 72 | 1.796 | 1.836 | 1.877 | 1.918 | 1.958 | 1.997 | 2.035 | 2.071 | 2.107 | 2.142 | 2.175 | 2.208 | 2.240 | 2.271 | 2.301 | 2.330 |
| 73 | 1.775 | 1.815 | 1.856 | 1.897 | 1.937 | 1.976 | 2.014 | 2.050 | 2.086 | 2.121 | 2.154 | 2.187 | 2.219 | 2.250 | 2.280 | 2.309 |
| 74 | 1.754 | 1.794 | 1.835 | 1.876 | 1.916 | 1.955 | 1.993 | 2.030 | 2.066 | 2.101 | 2.134 | 2.167 | 2.199 | 2.230 | 2.260 | 2.289 |
| 75 | 1.733 | 1.773 | 1.814 | 1.855 | 1.895 | 1.934 | 1.972 | 2.009 | 2.045 | 2.080 | 2.113 | 2.146 | 2.178 | 2.209 | 2.239 | 2.268 |
| 76 | 1.712 | 1.752 | 1.793 | 1.834 | 1.874 | 1.913 | 1.951 | 1.988 | 2.024 | 2.059 | 2.092 | 2.125 | 2.157 | 2.188 | 2.218 | 2.247 |
| 77 | 1.691 | 1.731 | 1.772 | 1.813 | 1.853 | 1.892 | 1.930 | 1.967 | 2.003 | 2.038 | 2.071 | 2.104 | 2.136 | 2.167 | 2.197 | 2.226 |
| 78 | 1.670 | 1.710 | 1.751 | 1.792 | 1.832 | 1.871 | 1.909 | 1.946 | 1.982 | 2.017 | 2.050 | 2.083 | 2.115 | 2.146 | 2.176 | 2.205 |
| 79 | 1.649 | 1.689 | 1.730 | 1.771 | 1.811 | 1.850 | 1.888 | 1.925 | 1.961 | 1.996 | 2.029 | 2.062 | 2.094 | 2.125 | 2.155 | 2.184 |
| 80 | 1.62 | | | | | | | | | | | | | | | |

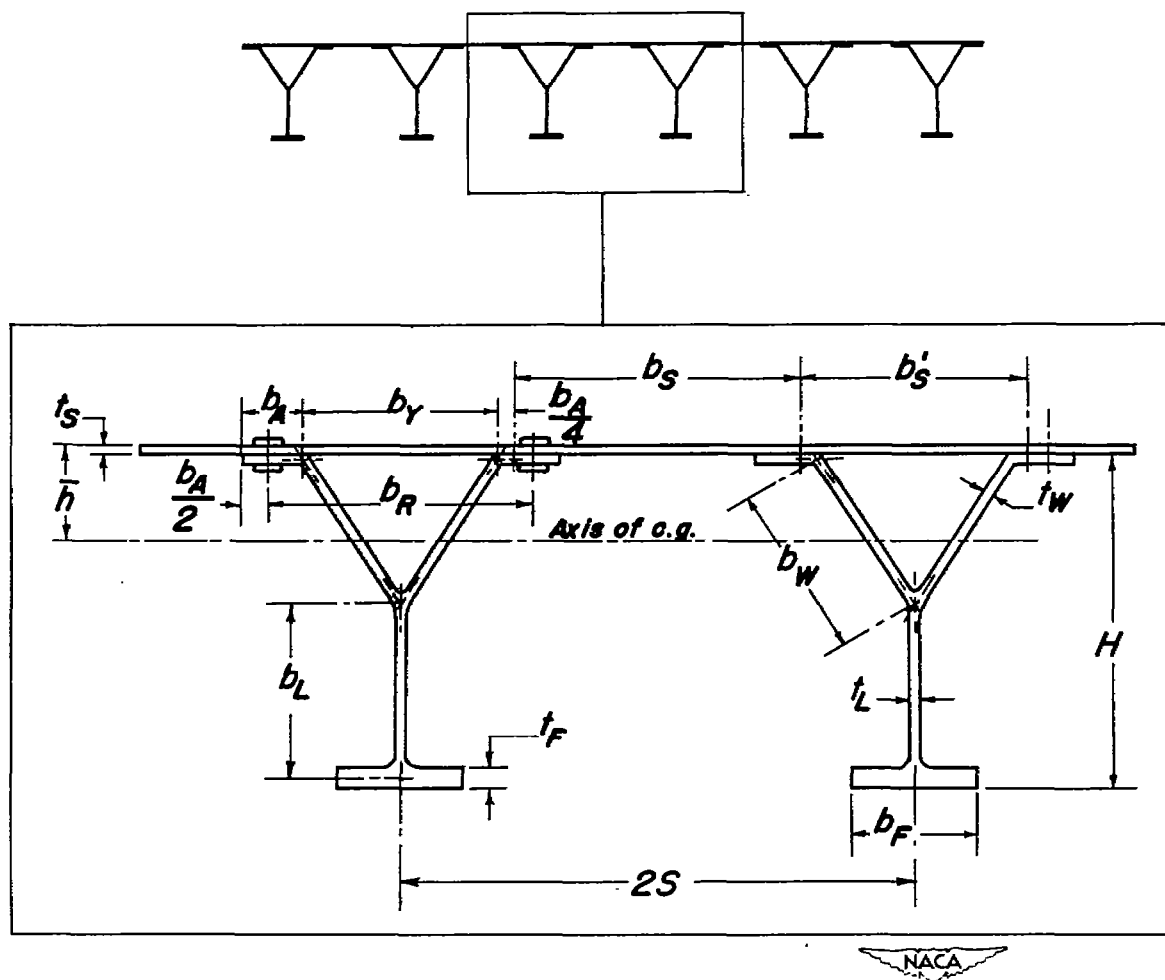


Figure 1. - Symbols for panel dimensions.

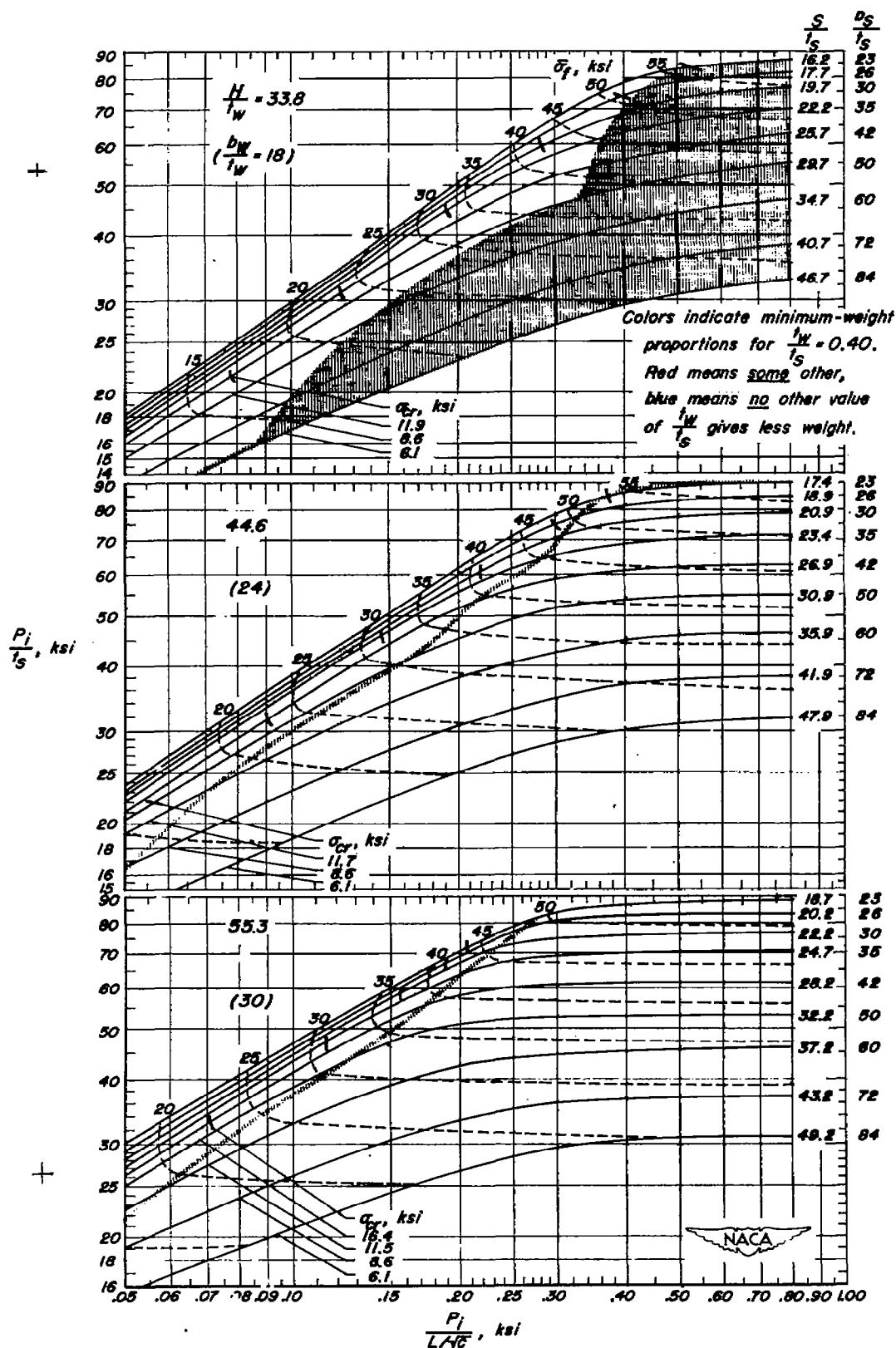


Figure 2.— Direct-reading design chart for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners. $h/t_w = 0.40$.

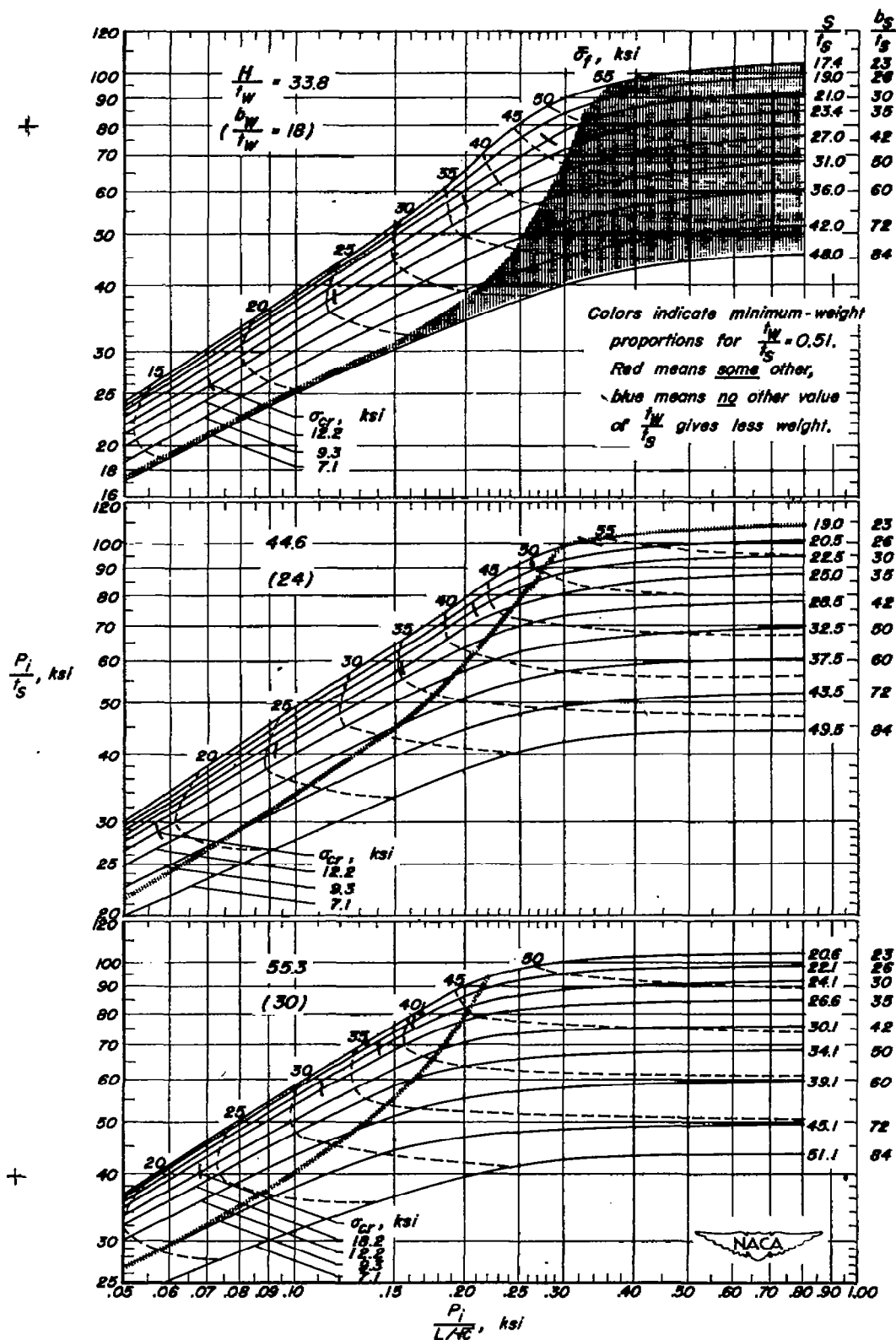
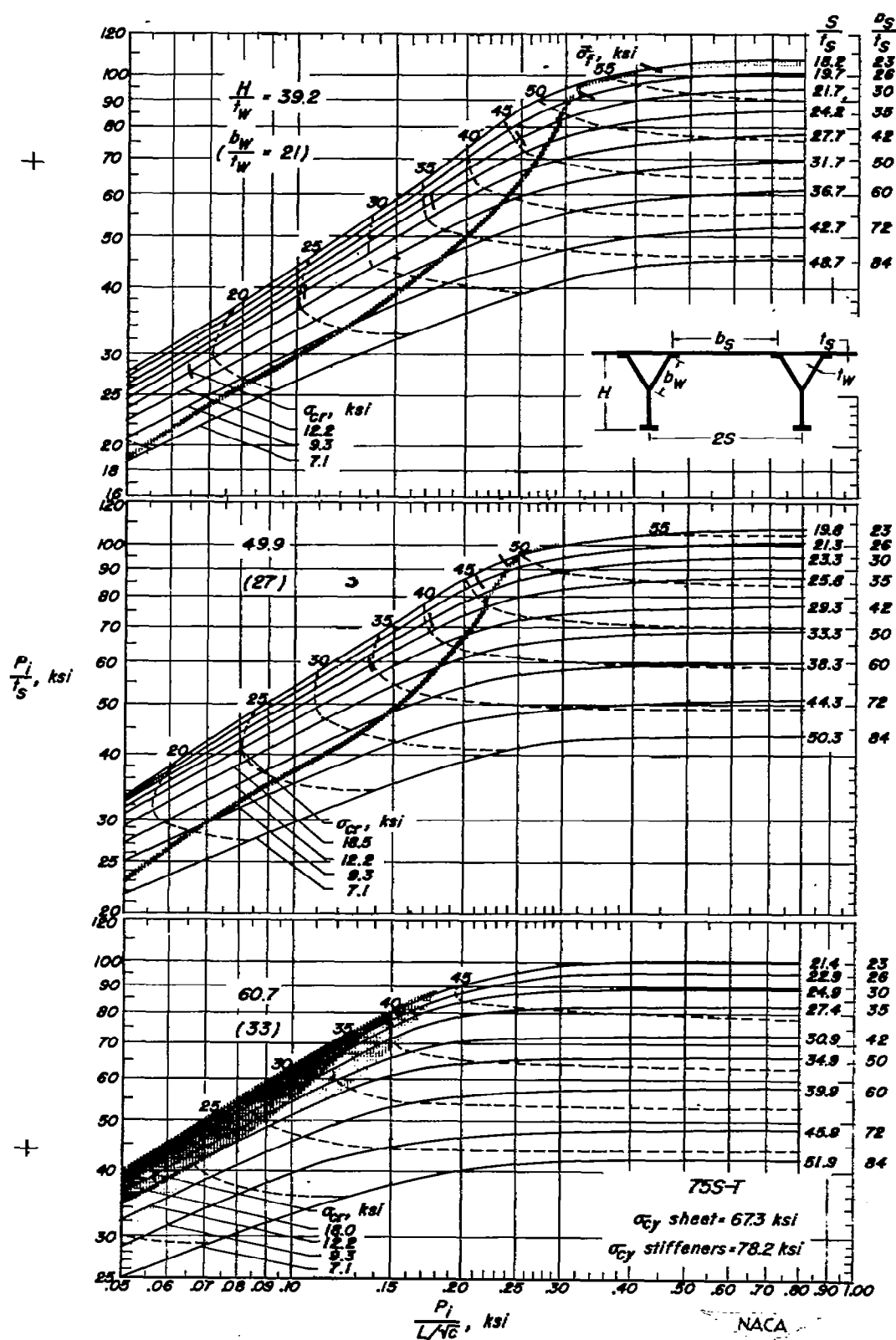


Figure 3.— Direct-reading design chart for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners. $\frac{t_w}{t_s} = 0.51$.

Figure 3.— Concluded, $\frac{t_w}{t_s} = 0.51$.

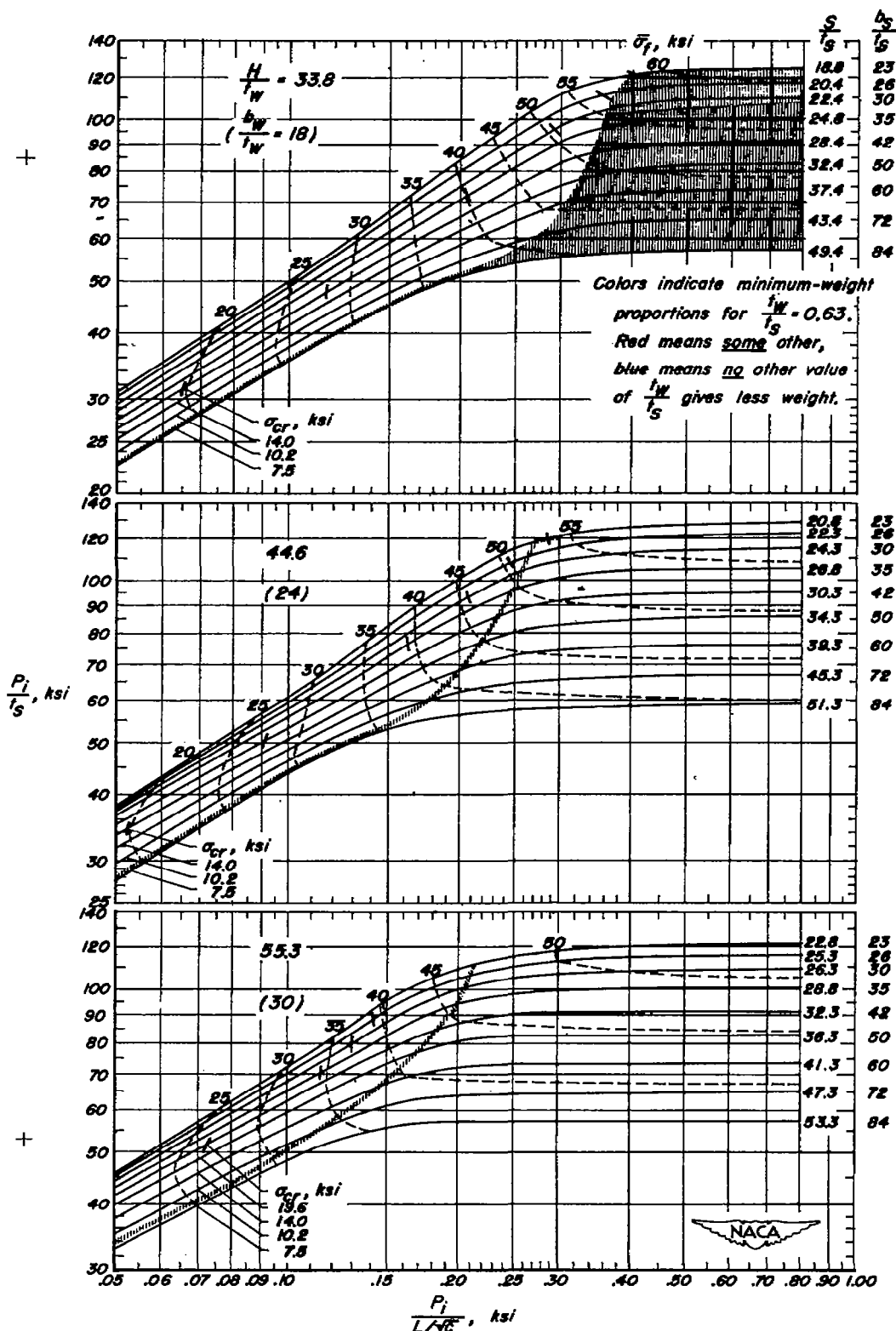
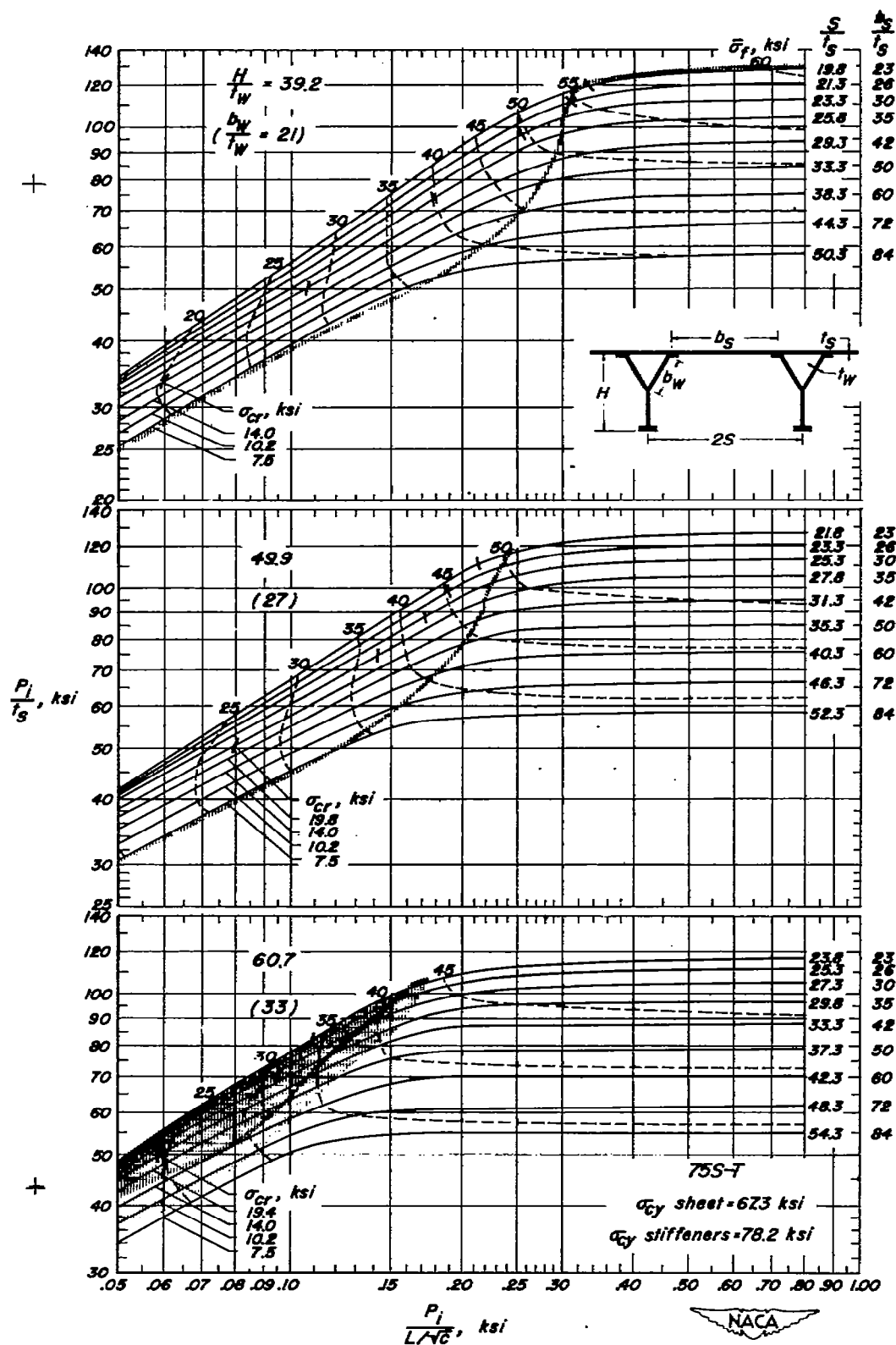


Figure 4.- Direct-reading design chart for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners, $\frac{t_w}{t_s} = 0.63$.

Figure 4.- Concluded. $\frac{t_w}{t_s} = 0.63$.

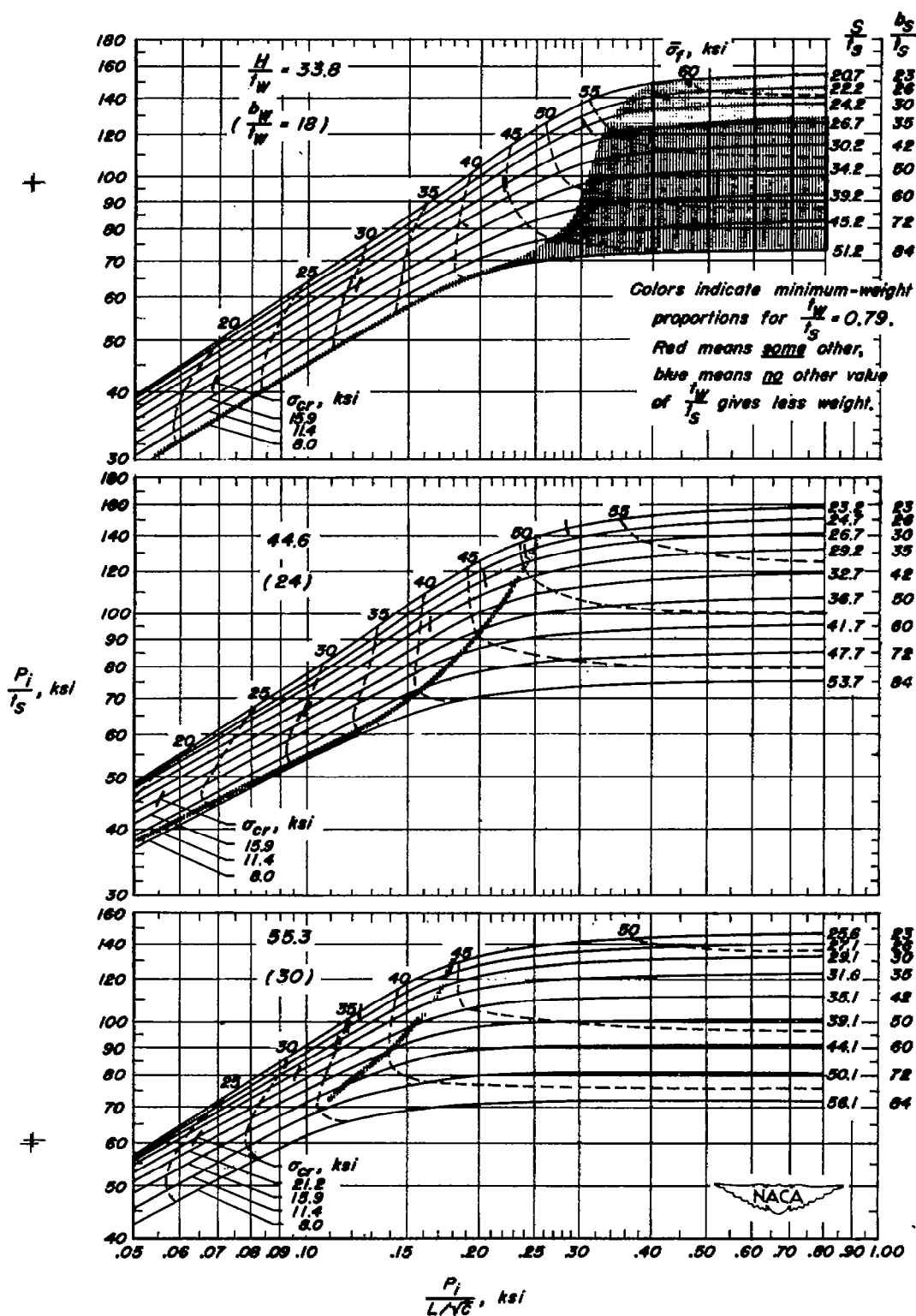


Figure 5.- Direct-reading design chart for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners. $\frac{b_s}{t_s} = 0.79$.

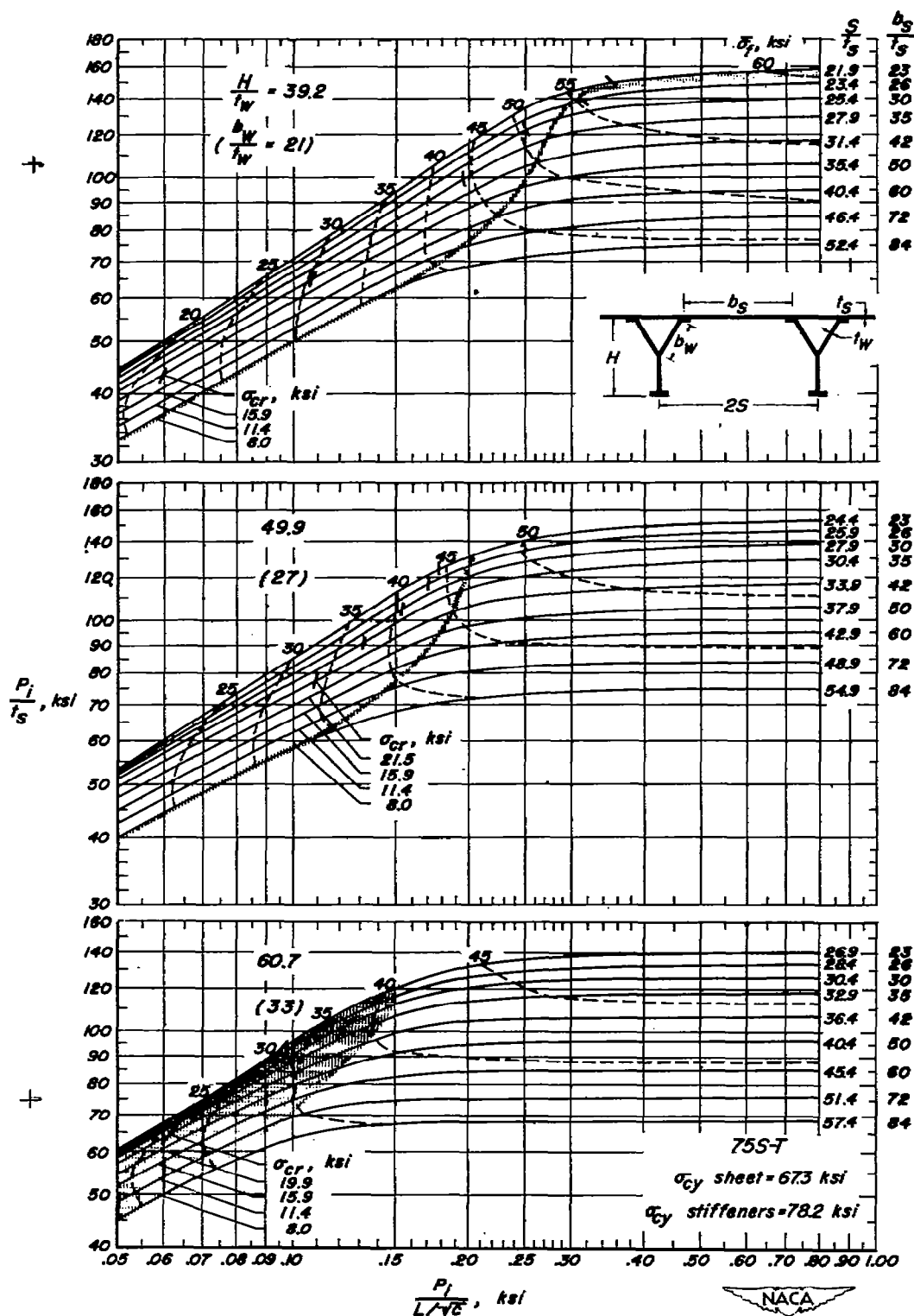


Figure 5.- Concluded, $\frac{t_W}{t_S} = 0.79$.

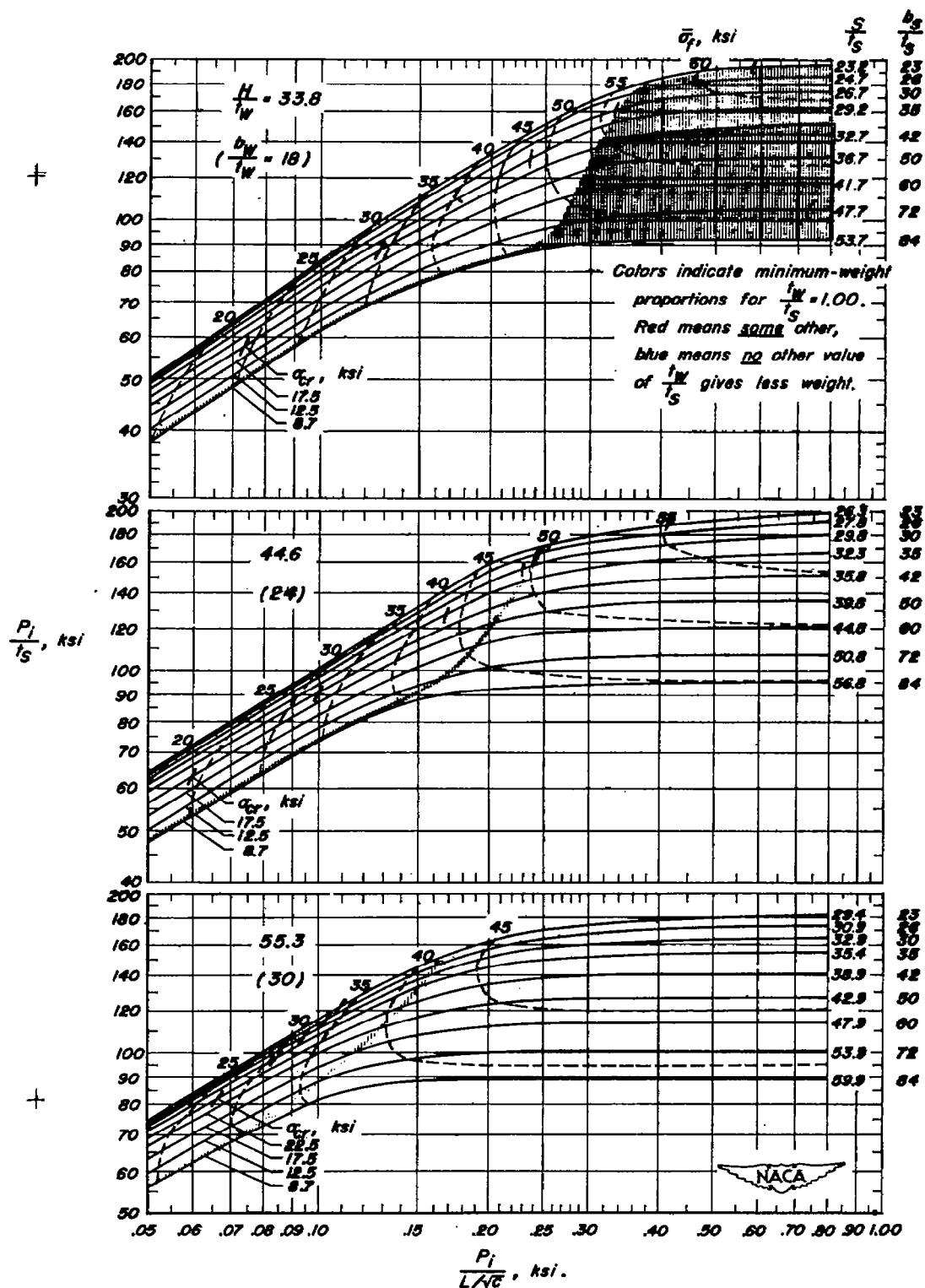
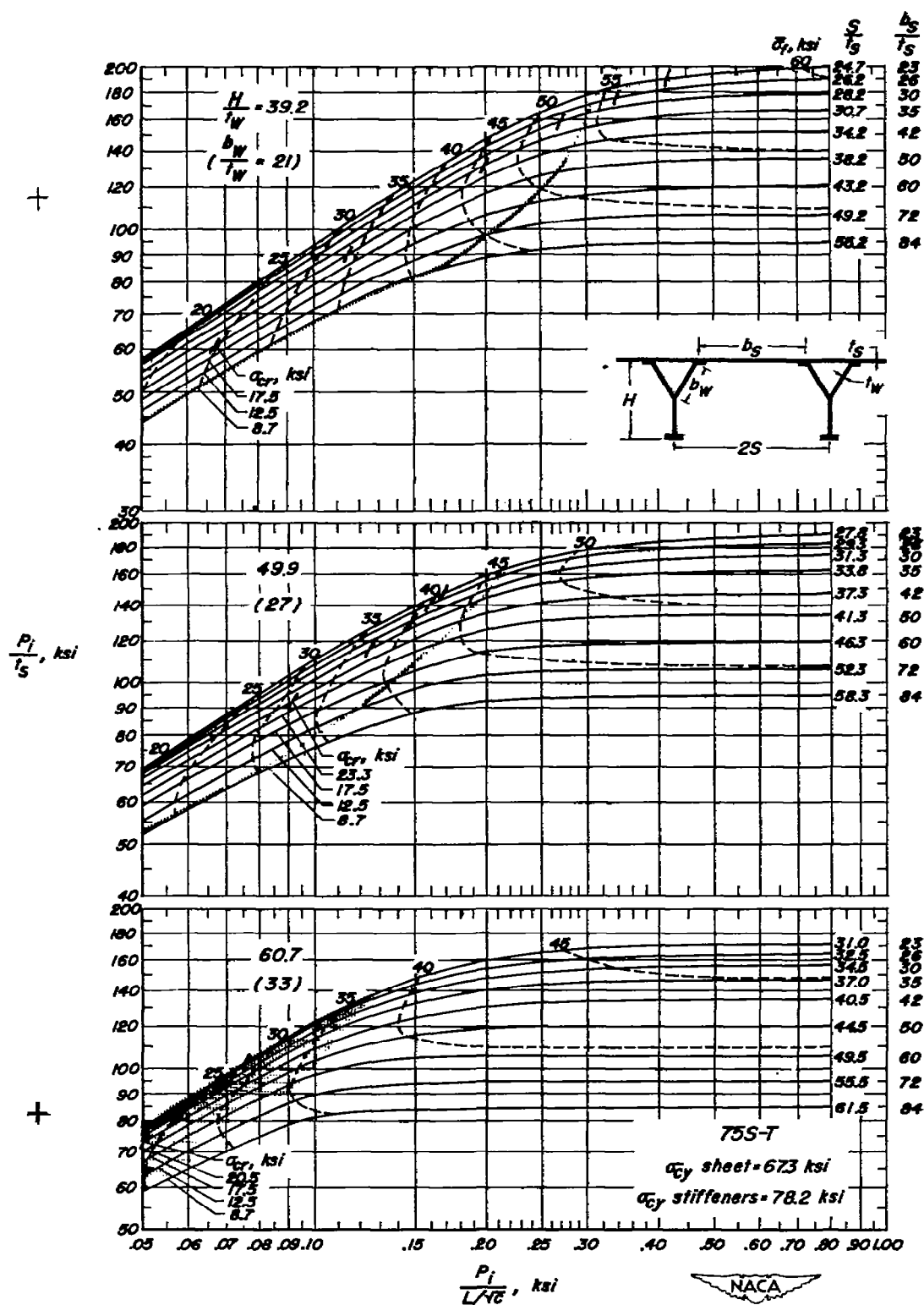


Figure 6.- Direct-reading design chart for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners, $\frac{t_w}{t_s} = 1.00$.

Figure 6.- Concluded, $\frac{t_w}{t_s} = 1.00$.

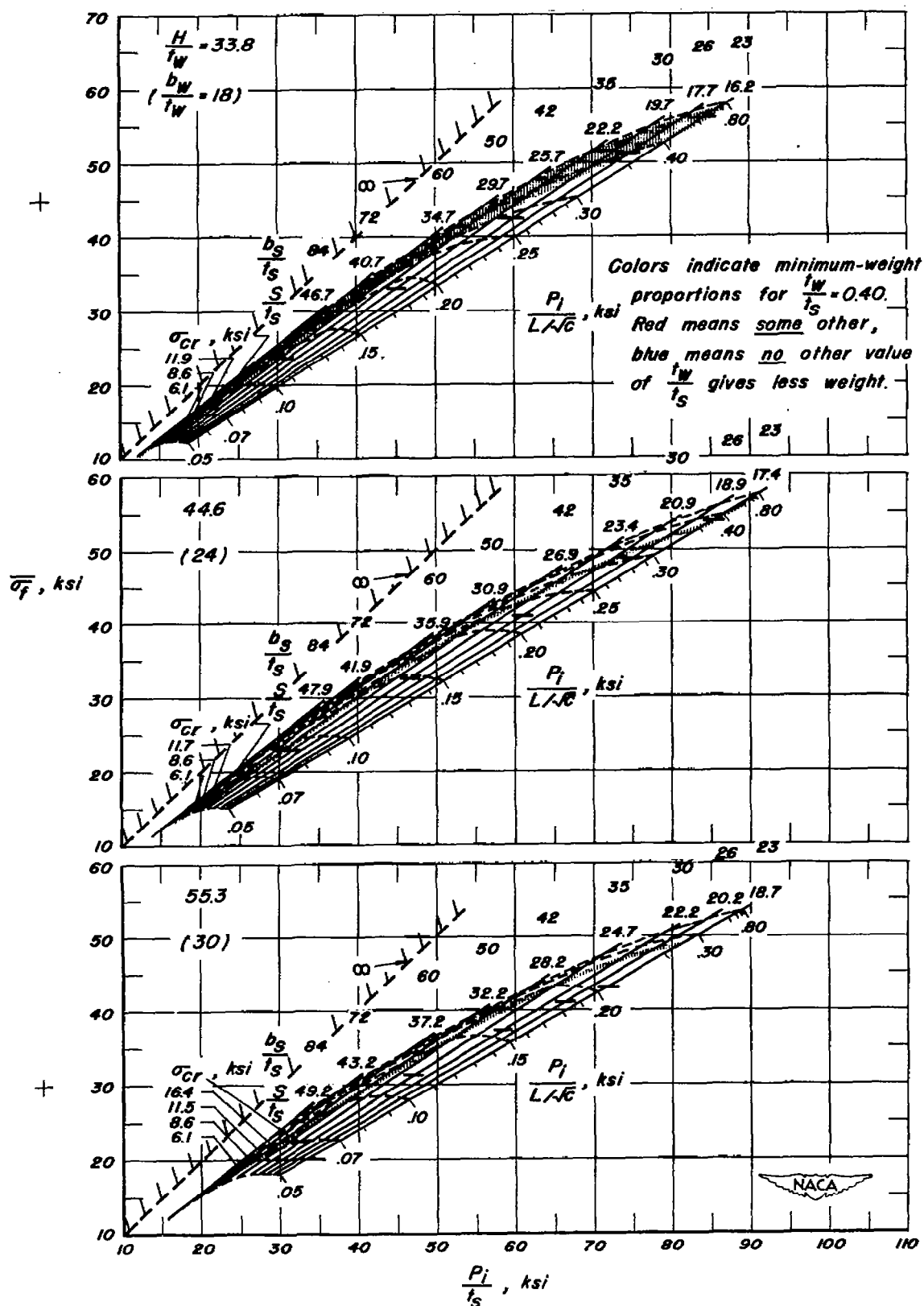


Figure 7.—Direct-reading design chart (alternate form) for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners. $\frac{t_w}{t_s} = 0.40$.

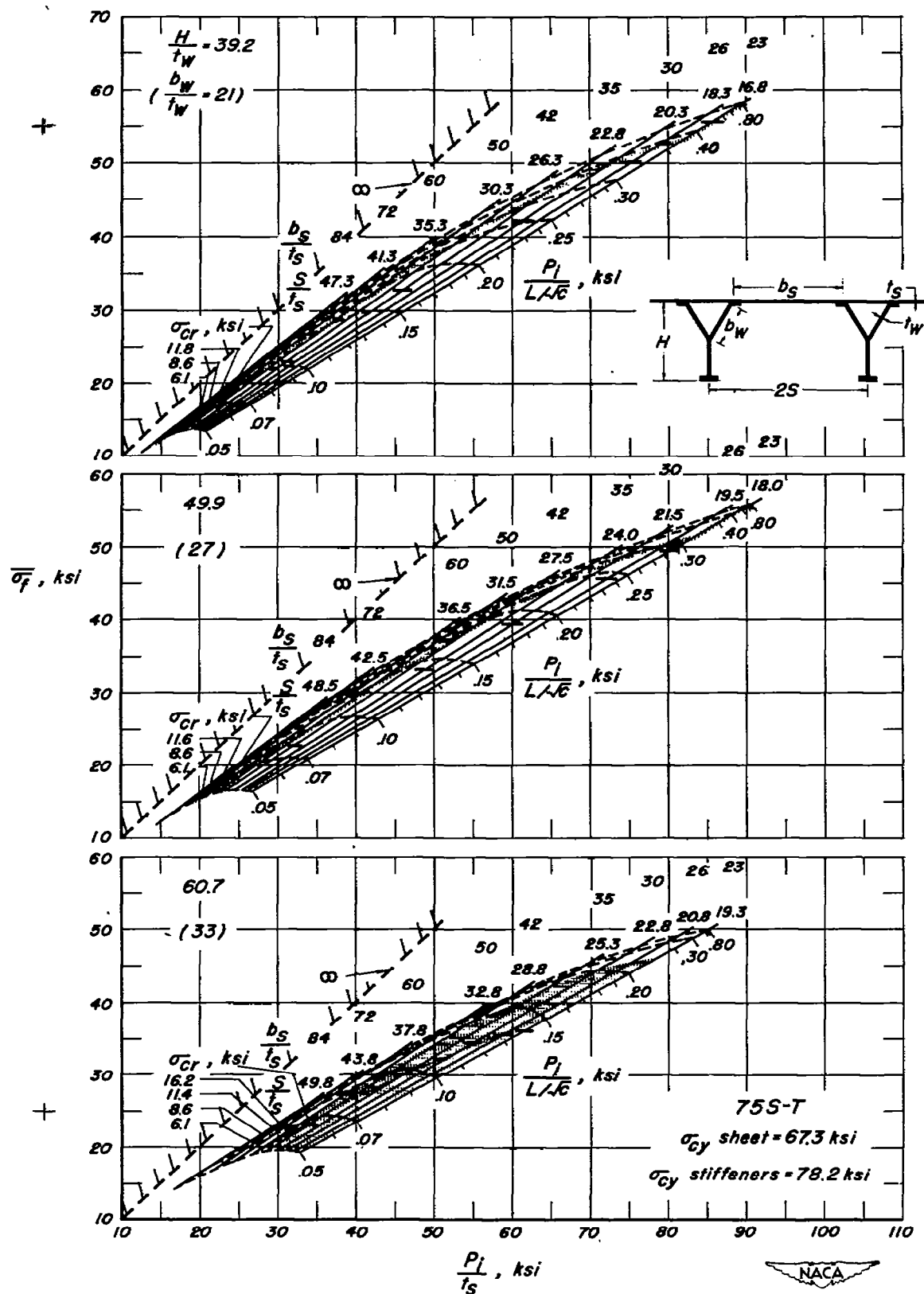


Figure 7.—Concluded. $t_w / t_s = 0.40$.

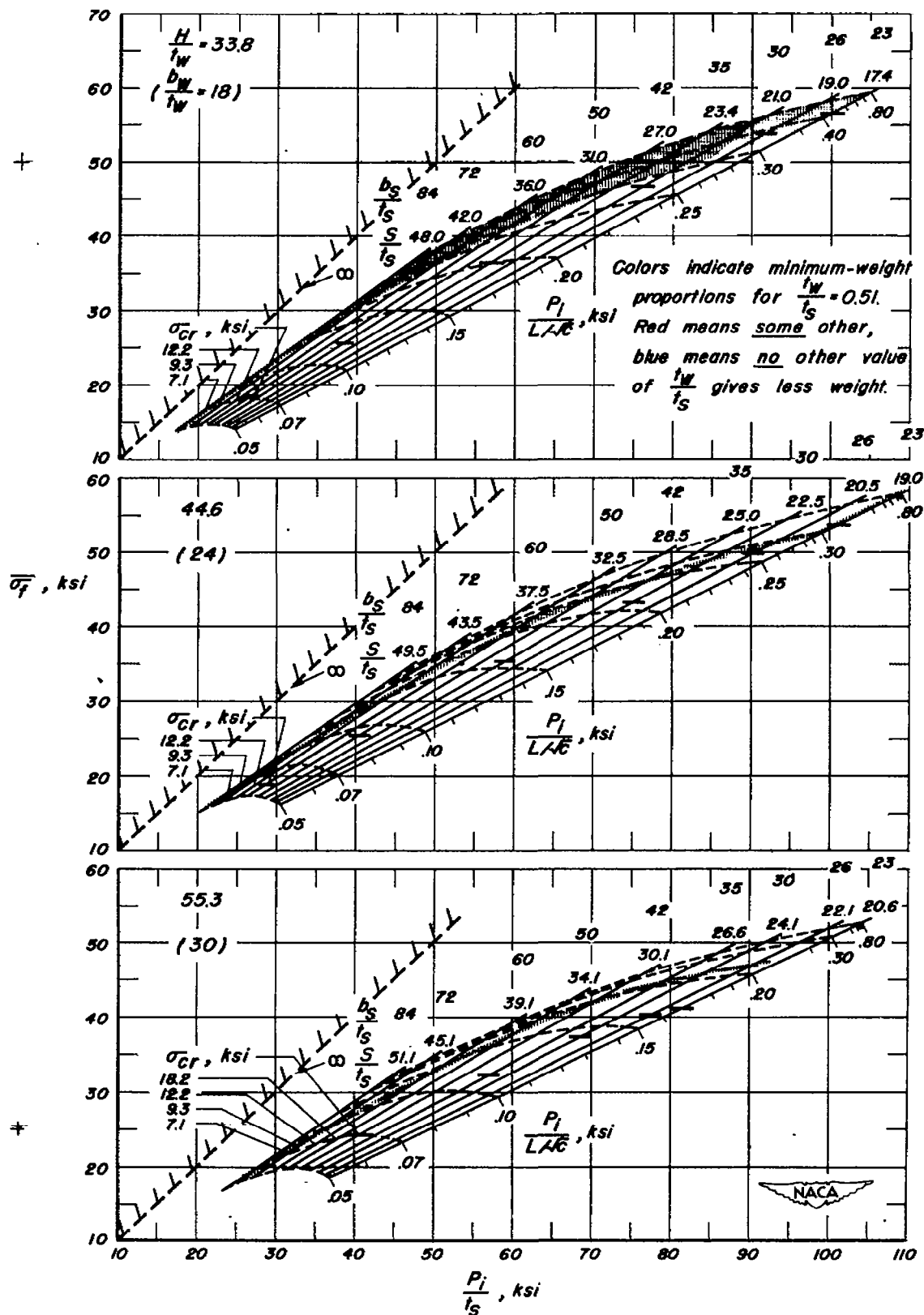


Figure 8.—Direct-reading design chart(alternate form) for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners, $\frac{t_w}{t_s} = 0.51$.

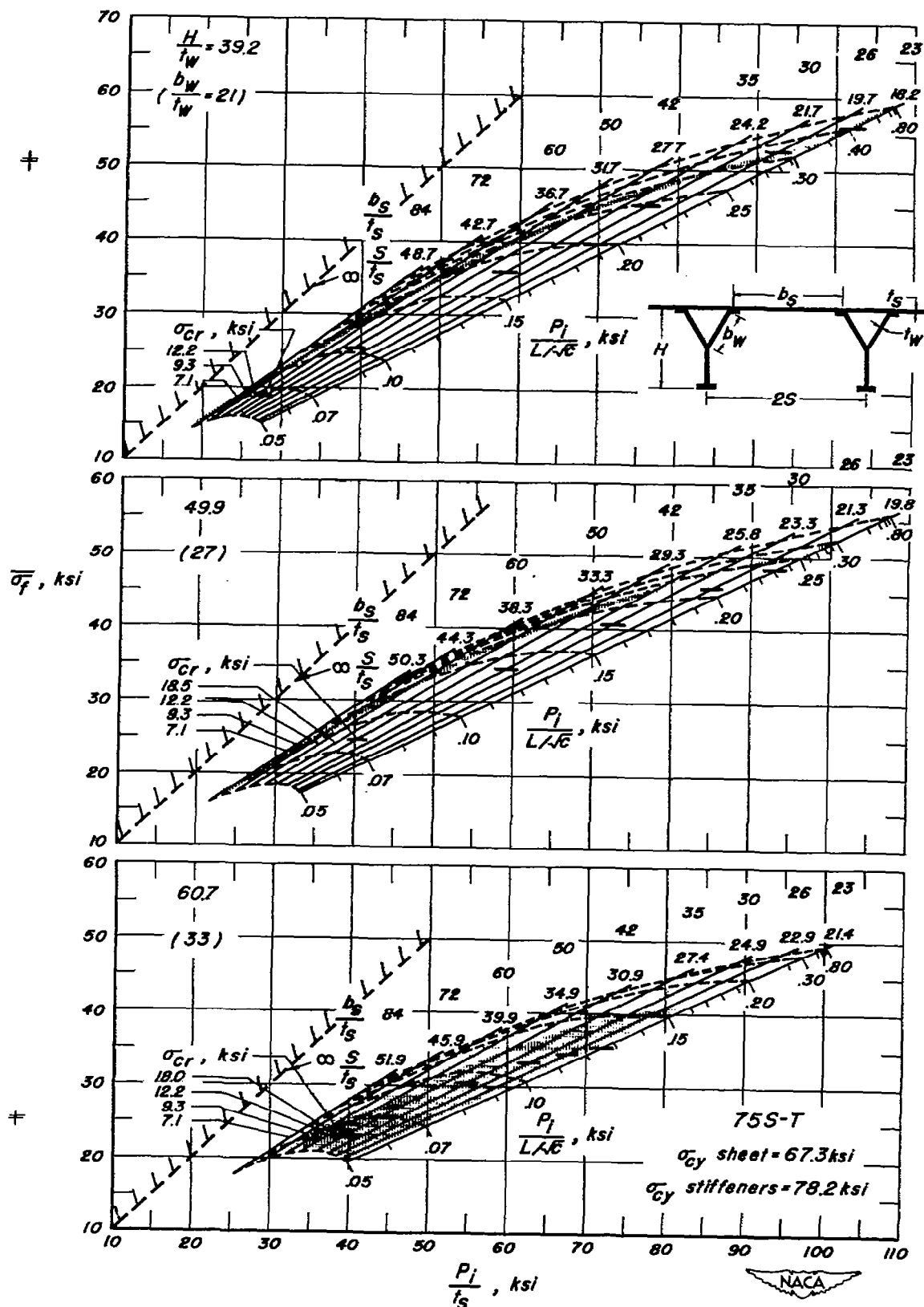
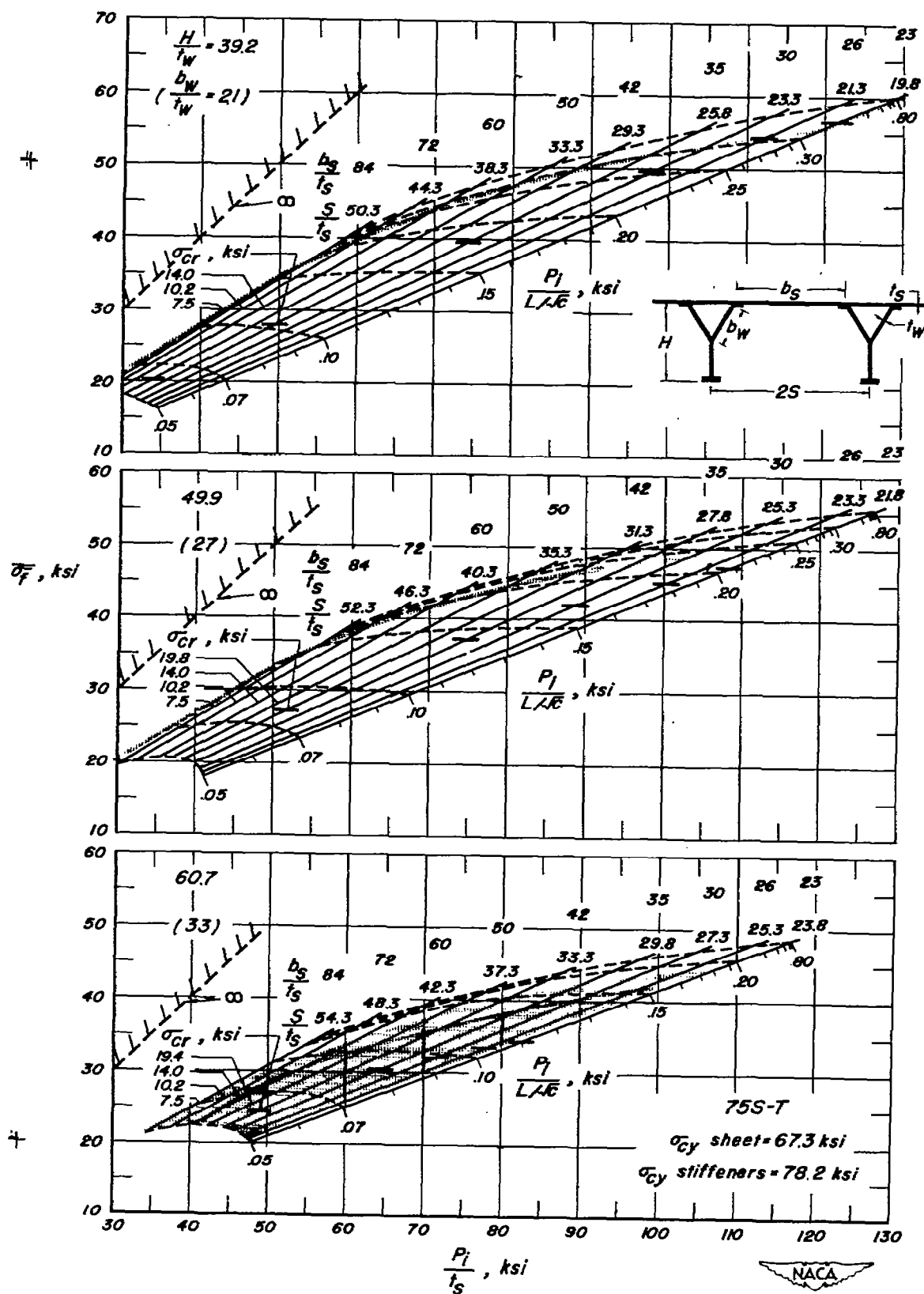


Figure 8.—Concluded. $\frac{t_w}{t_s} = 0.51$.



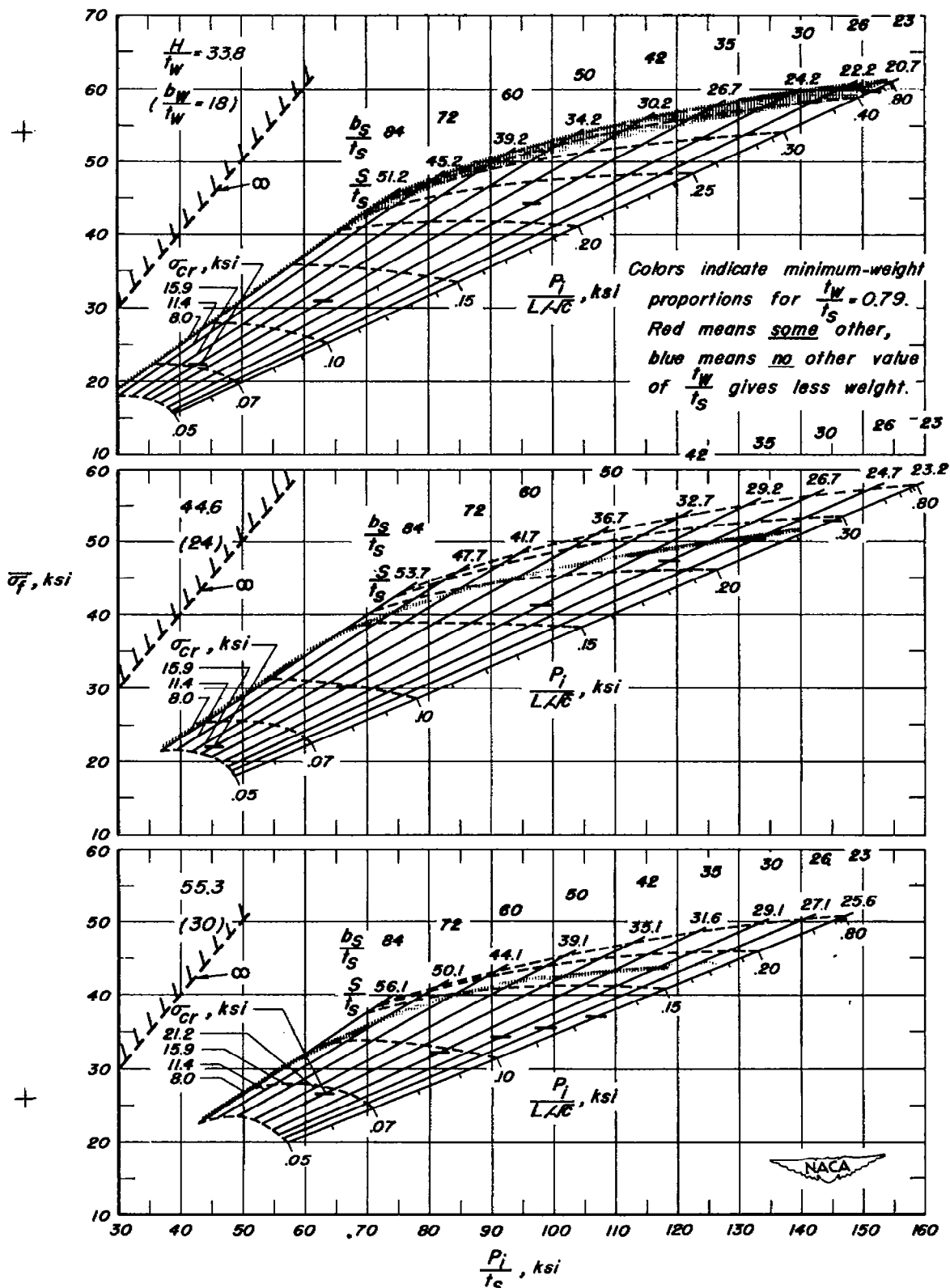
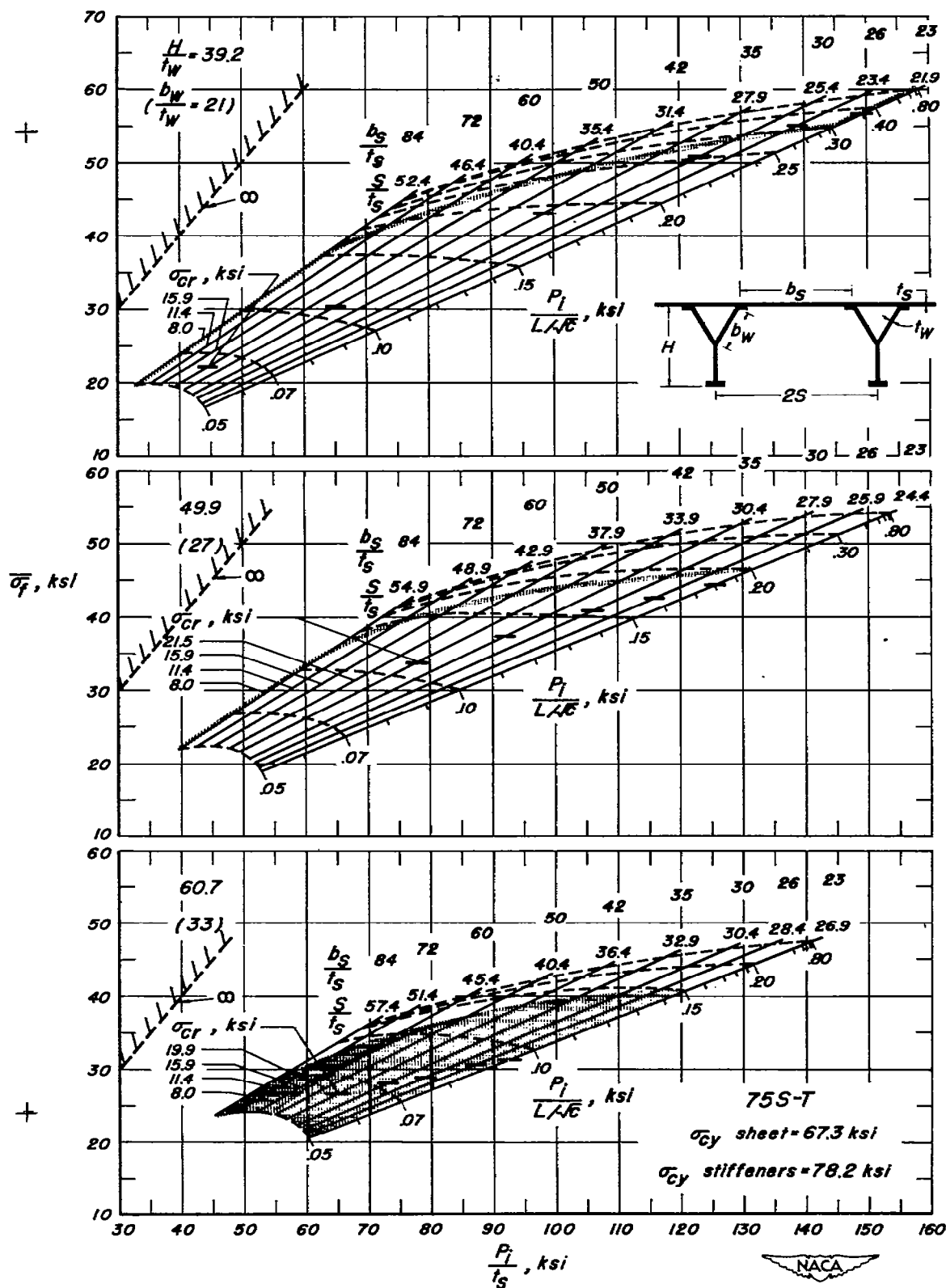


Figure 10.— Direct-reading design chart (alternate form) for flat compression panels of 75S-T aluminum alloy with straight-web Y-section stiffeners, $\frac{t_w}{t_s} = 0.79$.

Figure 10.—Concluded. $\frac{t_w}{t_s} = 0.79$.

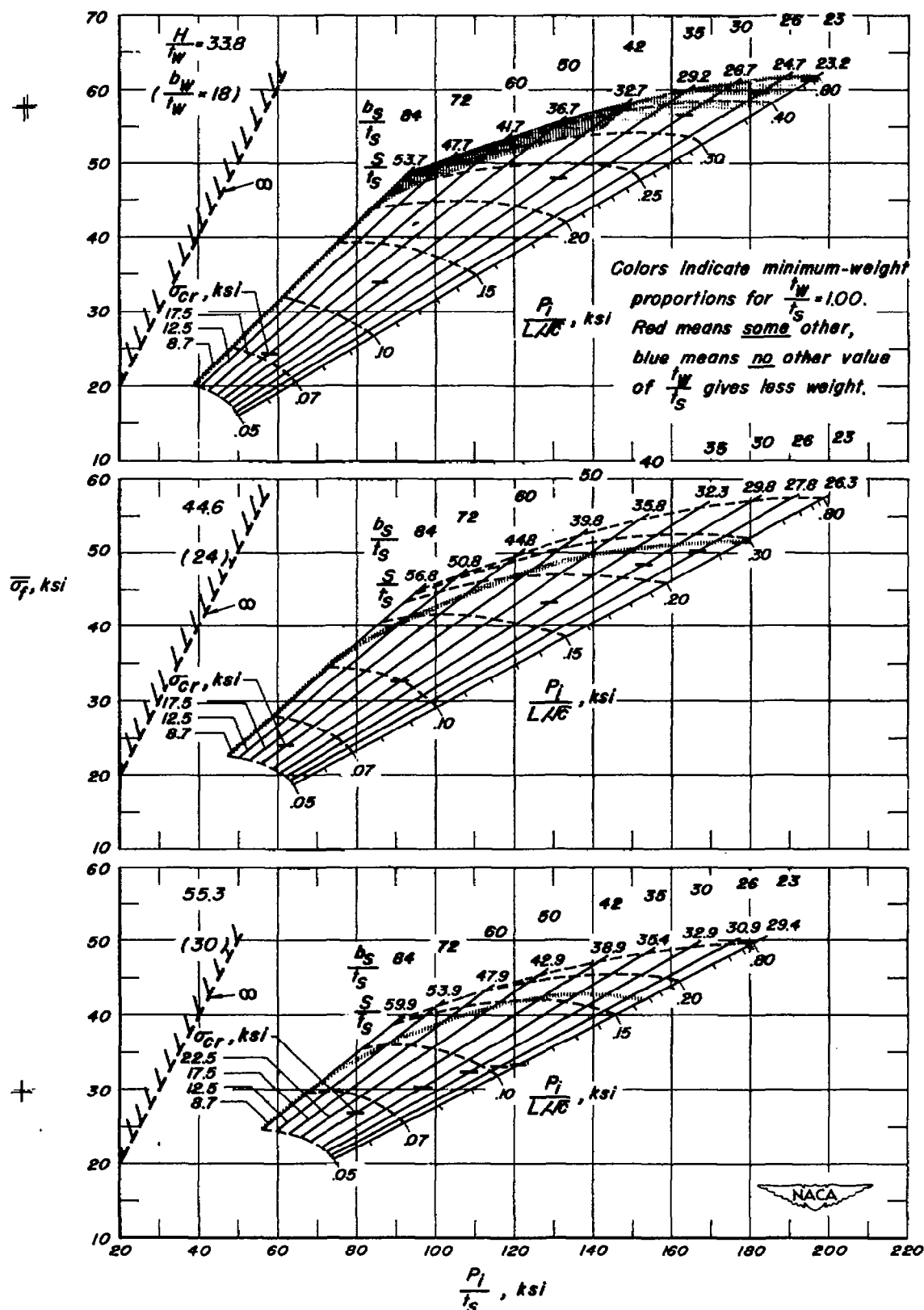
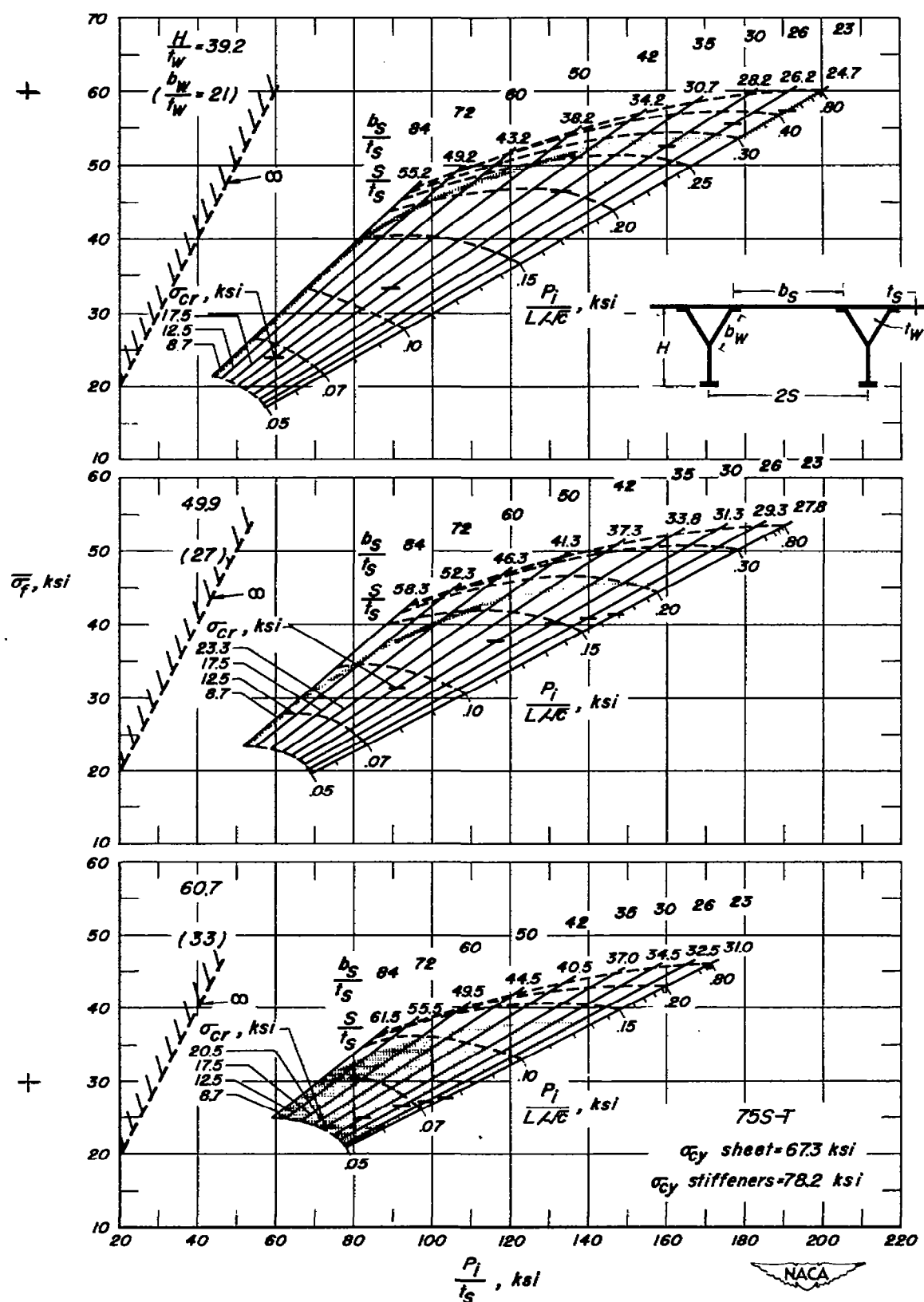


Figure 11.—Direct-reading design chart (alternate form) for flat compression panels of 75S-T aluminum alloy with standard web & corner stiffeners $t_w = 1.00$

Figure 11.—Concluded, $\frac{t_w}{t_s} = 1.00$.

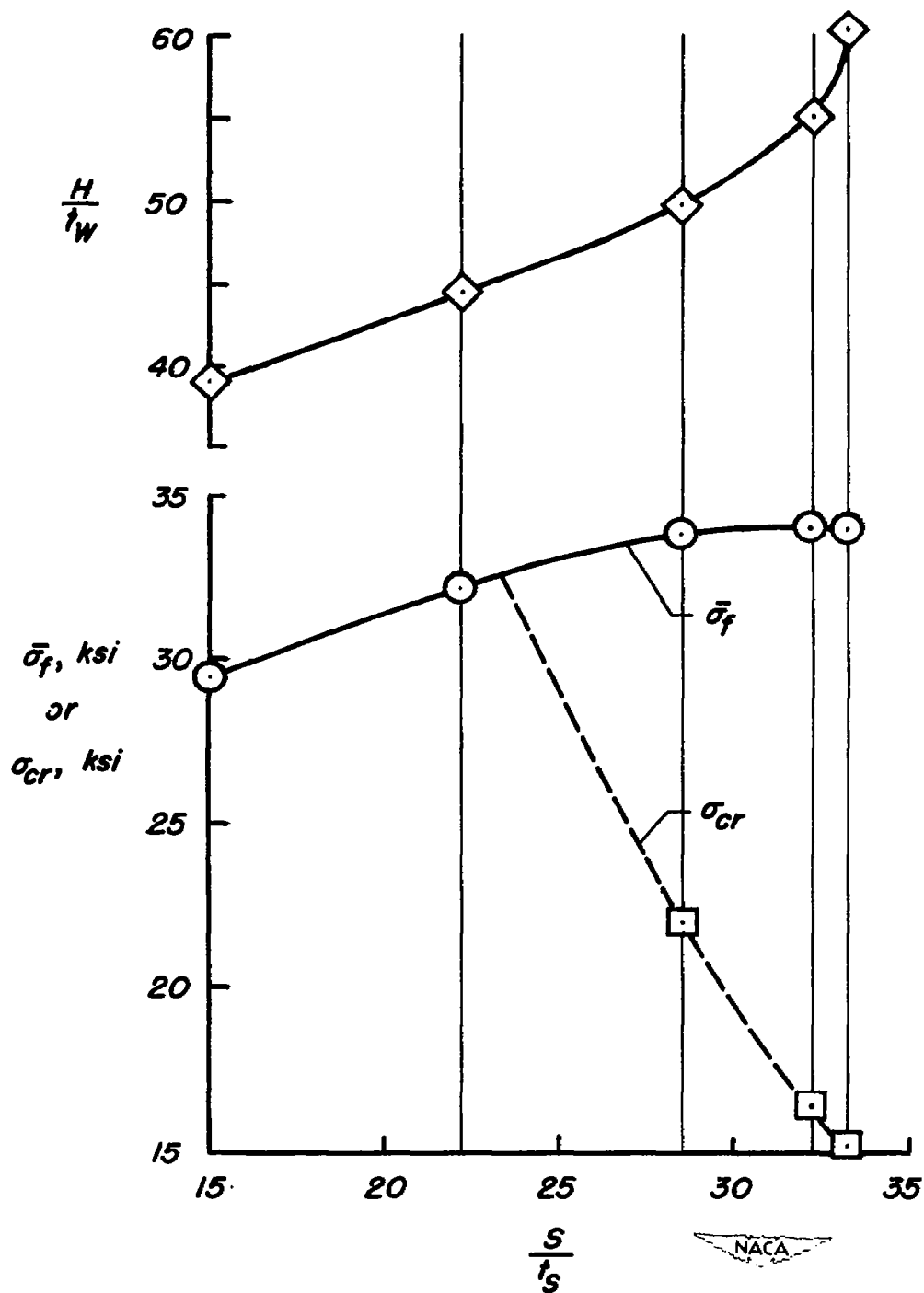


Figure 12.— Plot for obtaining design from design charts.